SHOW REPORTS: Las Vegas' COMDEX and FES in London

Amazing COMPUTING™ For The Commodore AMIGA®

Your Original AMIGA® Monthly Resource

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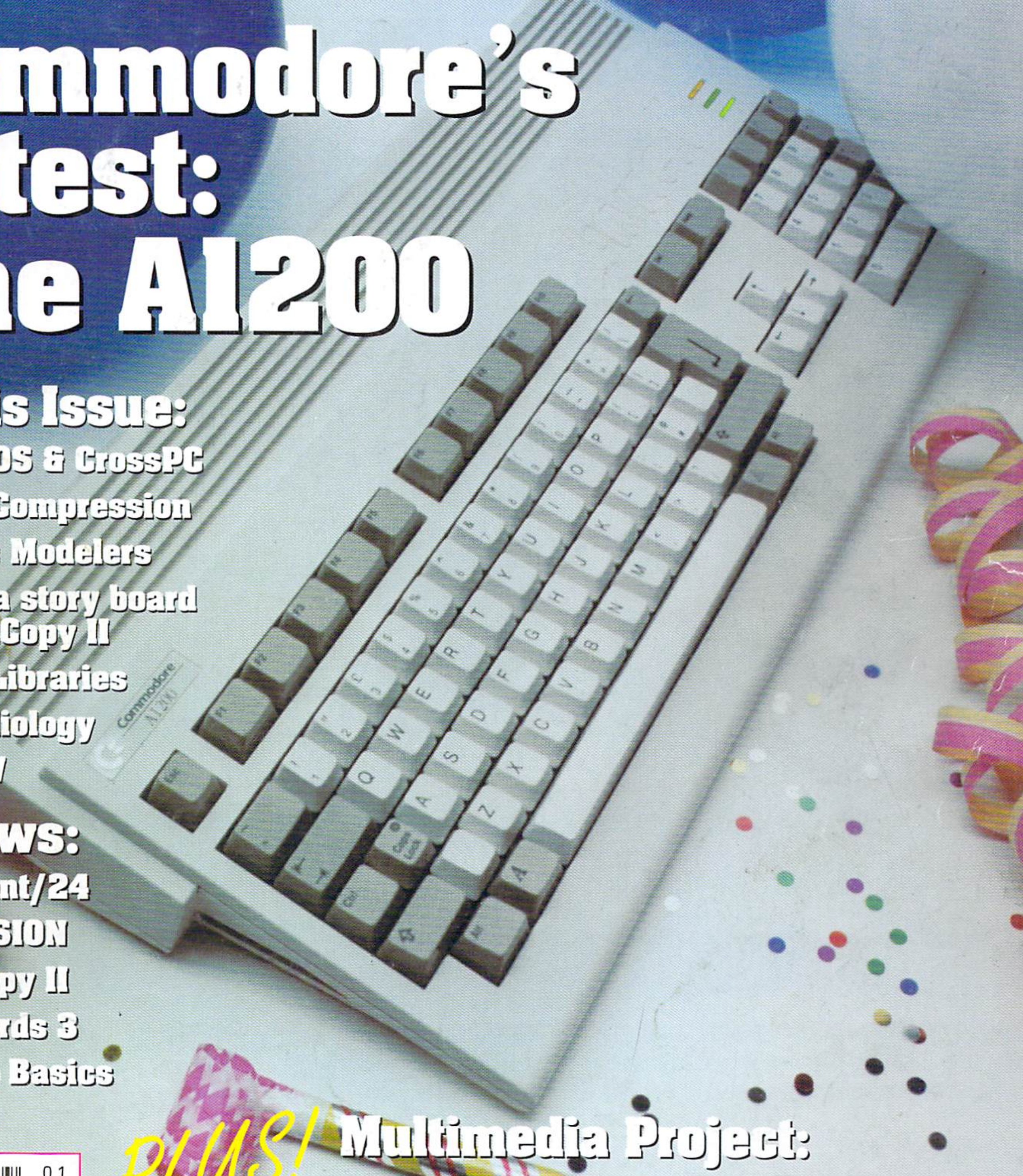

Commodore's Latest: The A1200

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- CrossDOS & CrossPC
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- Generic Modelers
- Create a story board in FinalCopy II
- 24-bit Libraries
- Teleradiology
- Maple V

Reviews:

- TruePrint/24
- MathVISION
- FinalCopy II
- KindWords 3
- Back to Basics

PLUS!

Multimedia Project:

- Using laser disk players with your Amiga

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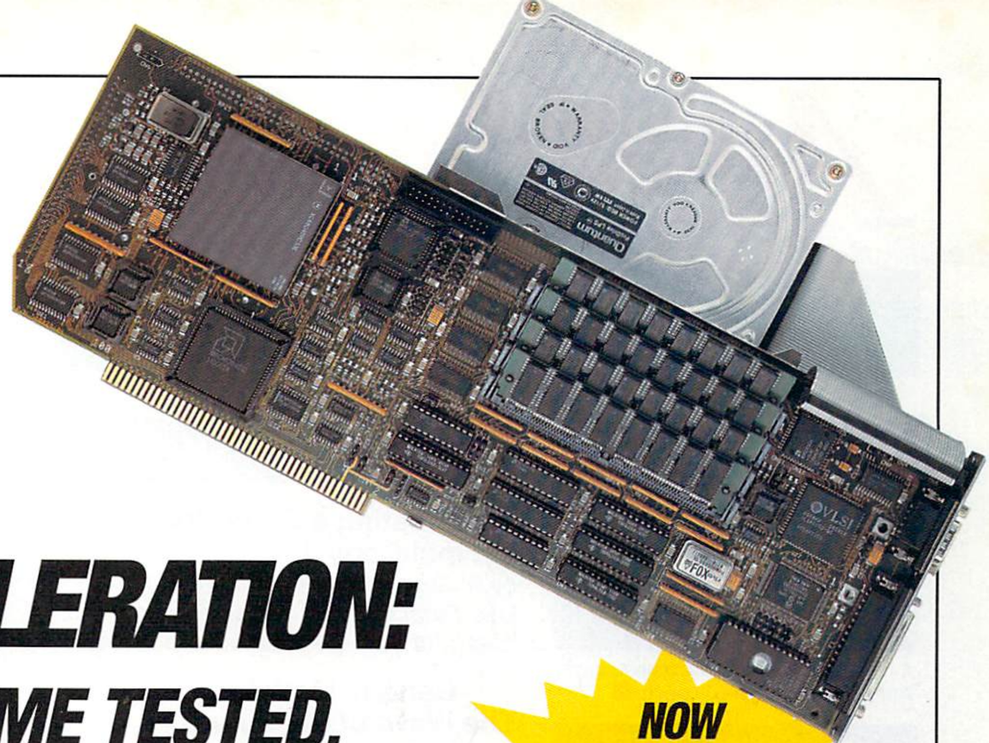

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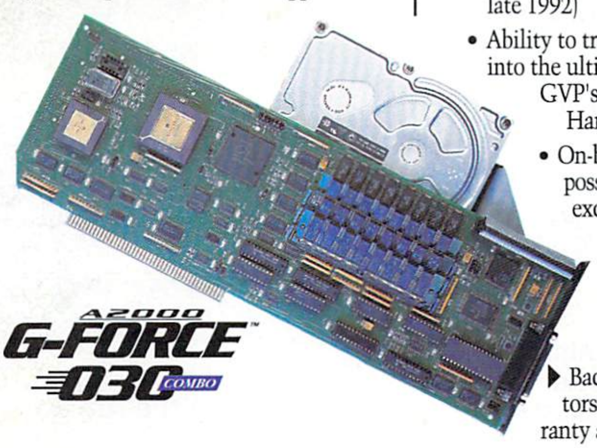

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Amazing COMPUTING™ For The Commodore AMIGA

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January 1993

Cover photograph by Rick Hess

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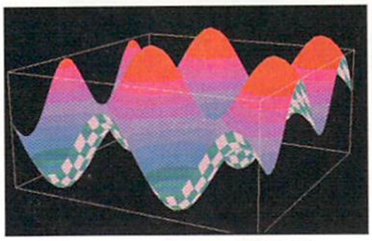
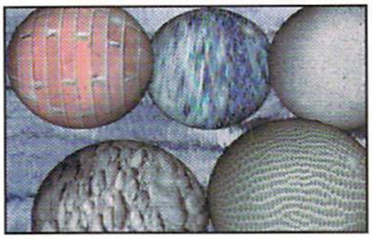
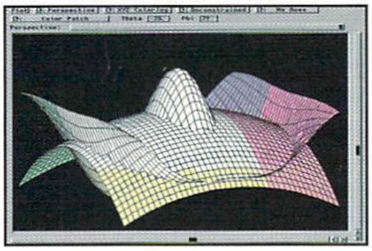


A Plot screen from **MathVISION** by *Seven Seas Software.*



A group of spheres mapped with **Texture City** textures (see pg 58).



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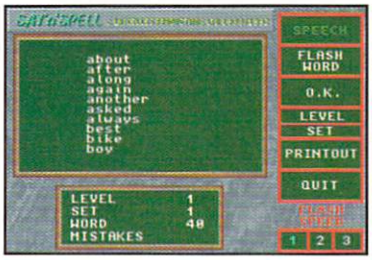

about
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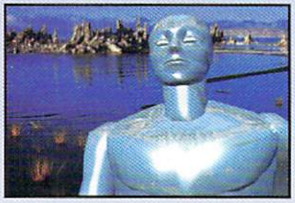
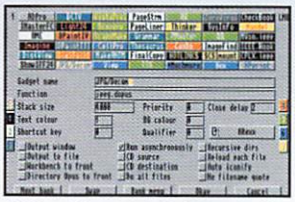
...plus read about *MiGraph's* **PS-400** full-page scanner, and lots more in this month's **New Products.**



Motion Man rendered in **LightWave 3-D** from this month's **Video Slot** by Frank McMahon.



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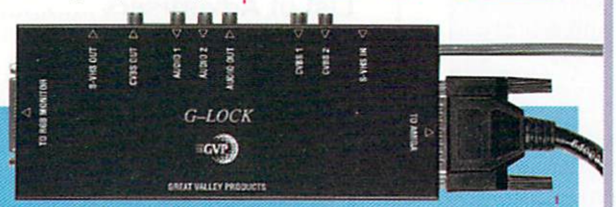

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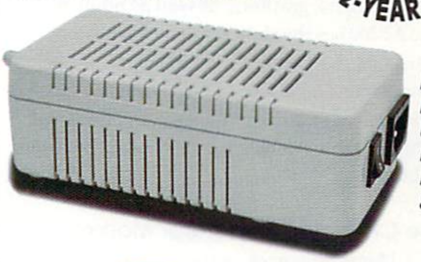

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EDITORIAL CONTENT

Commodore Does It Again!

For the third time in four months Commodore has announced a new computer in the Amiga line. Each new Amiga has been unique with a variety of options and market possibilities.

The Amiga 1200's design is great for the consumer market. With sleek lines and a low profile, it provides Amiga computing opportunities in a highly organized and less intimidating style than a desk model. Yet, this A500 look-alike's beauty is more than skin deep. It has options and potential unlike any other Amiga.

Amiga Graphics

The Amiga 1200, introduced at the Fall '92 COMDEX, has adopted the higher graphic capabilities of the Amiga 4000 through the built-in AA chip set. But, it has also maintained a look of an Amiga 500 with a little A600 for character.

The A1200 has a PCMCIA port like the A600. While this versatile port is becoming extremely popular in the MS-DOS market, the A1200 and A600 are one of the first consumer desktop machines to use the expansion standard. This port will no doubt be used by game manufacturers who want a medium that cannot be duplicated (read pirated), yet the PCMCIA port also opens the way for increased memory, portable hard drives, tiny fax/modems, and more.

The Amiga 1200 includes a 150-pin Local BUS for anyone who has missed the old side connector of the A500. This connector is located in the area of the A500's memory expansion and it will make it possible to upgrade the A1200 with a variety of memory and speed enhancing products while not disturbing the exterior look of the device.

CBM has created one heck of a device for presentations, graphics, as well as home use. The A1200 has the ability to capture the imagination of the computer market. It fits well between the A600 and the A2000 or A3000 as a device with expandability and the latest Amiga graphics. But how will Commodore sell them all?

The Changing Computer Market!

Have you ever wondered what happened to Apple Computer? Once upon a time, if anyone wanted to find an Apple Computer dealer, they had to hunt through the phone book, travel 20 to 30 miles, and then find a few machines in the basement of a camera store, electronics shop, or book dealer. Later, Apple began qualifying their dealerships, training the dealer's sales staff, and doing their best to make a highly authoritative sales force that would be able to justify the cost of a Mac.

In the eighties, this effort became extreme. Apple sales people turned into product representatives. Gone were the T-shirts and sneakers of the part-time college students to be replaced by the suits and ties of a very different style of sales professional. One store in New York arranged appointments with their customers and allowed no walk-in.

However, times have changed once again. With the entry of the computer superstore, Apple apparently has rethought its strategy.

Apples Aisle 4

At first, computer superstores carried aisles and aisles of MS-DOS software, but hardly anything of the Macintosh. Even dealers who carried the Mac and IBM (or clones) together found they had much more MS-DOS software in stock than Mac. This gave the impression to consumers that there was nothing for the Mac and that their best choice was an MS-DOS machine.

Has Apple Computer given the Amiga its best opportunity?

Facing an MS-DOS domination of market share, Apple has apparently decided to fight fire with fire. While once it was impossible to buy a Mac by mail order, now you can. While it was almost impossible to find stores that carried Apple machines at discount, now they do. Plus, Apple has introduced the Performa series of computers (off-spring of their current line) which can be purchased in office supply stores, fashionable appliance stores, Sears, and more.

So What?

With all these added outlets for Apple, what incentive is there to go to an independent Apple dealer? With all the effort these dealers have made through the years, isn't it possible they now have a desire to do more than just sell Macintosh?

Over the years, Apple has gathered a highly trained, competent network of dealers who are in prime locations all over North America. These same dealers have seen their market eroded. They need a specialized computer platform which performs unique tasks and suggests unique opportunities to offer to their respective clients. Why not Amiga?

With very little danger to the Amiga dealers already in place, Commodore could seduce these dealers to the Amiga platform. When Apple suggests multimedia, dealers can offer an array of choices including the Amiga. When the IBM talks about CD-ROM capabilities, the dealer can demonstrate CDTV. No one in the marketplace is in a better position to make this happen than these dealers.

A Better Product

Computers are tools. Everyone of us appreciates the limitations of each computer—even the Amiga. However, most Amiga enthusiasts will argue that if the Amiga was placed on an equal footing with the MS-DOS computers and the Macintosh, the Amiga would come away with the most wins.

Real multitasking, multimedia, true video support, cross platform emulation and translations, great sound capabilities, on-site customer service, and more, make the Amiga an outstanding choice for an array of applications. Professional systems such as the Amiga 4000 could find real acceptance against a market of higher priced Macintosh computers.

What To Do?

Encourage your local Apple dealer to look at the Amiga. Show him a copy of this issue. Take in your current copy of *AC's GUIDE To The Commodore Amiga*(the Winter '93 issue is on the newsstands now). Tell them about the unique features of the Amiga and the opportunities in video, sound, multimedia, presentations, and more. If you are in a location where the nearest Amiga dealer is miles away, tell them how many loyal Amiga fans are already in the area.

Every computer dealer is a business person searching for the best way to satisfy the customer's needs. The Amiga platform offers an entire series of ways to do this. You can make the difference by showing the support you have for the Amiga. Your belief in the product will inspire them. In the end, we could gain a great many well-placed, highly-effective Amiga dealers, even though some will probably still want to wear suits.

Sincerely,

Don Hicks
Managing Editor

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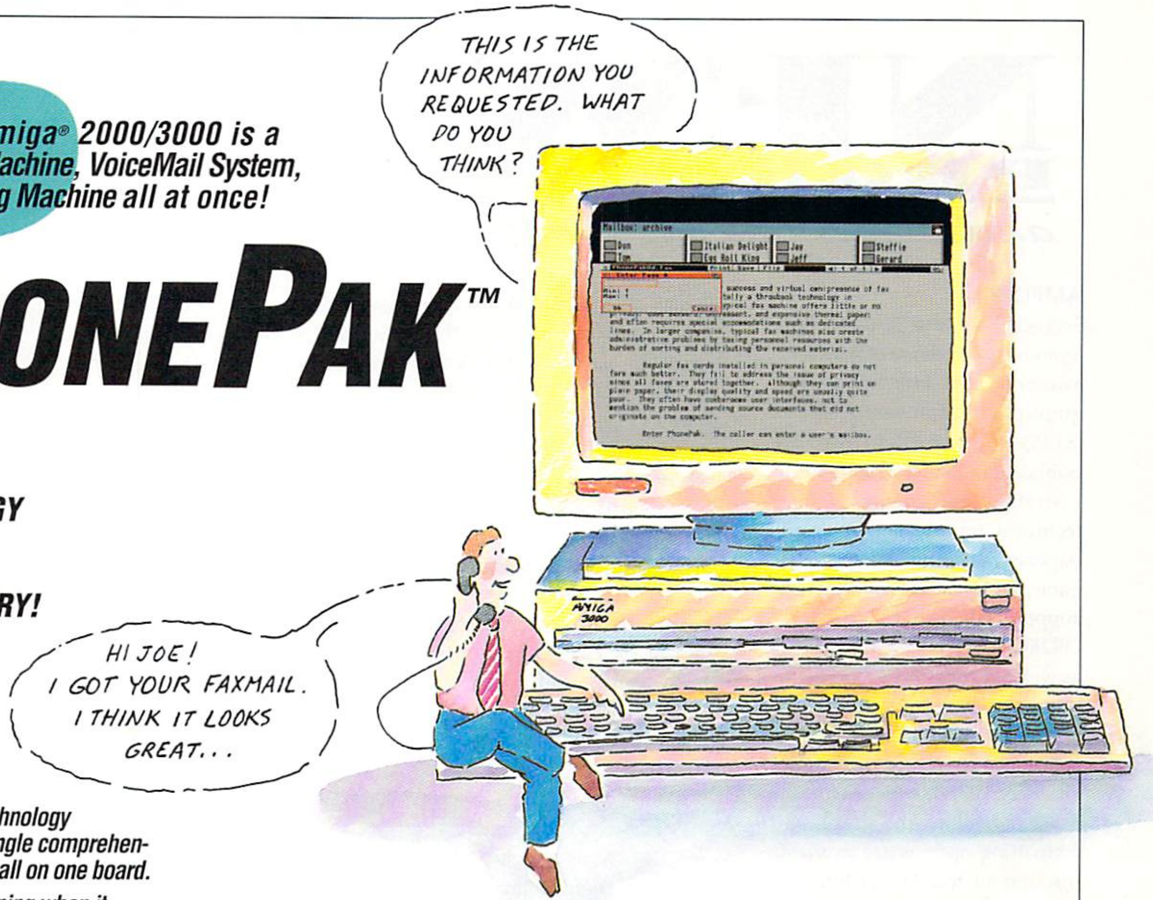
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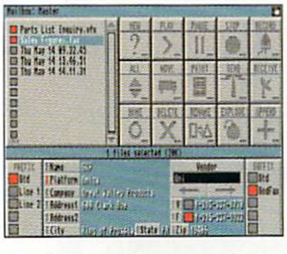

Main PhonePak Control Panel

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PhonePak requires 2MB RAM and a hard drive, and is FCC certified for use in the United States.
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Circle 112 on Reader Service card.

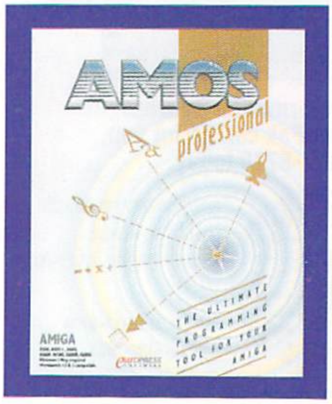
NEW PRODUCTS
and other neat stuff

AMPlot2

SciTech Software is pleased to announce the release of AMPlot2, a major upgrade to their PostScript graph plotting software. AMPlot2 ($135) is designed to produce publication quality graphs for illustrating documents such as technical reports and scientific papers. The software has undergone a complete rewrite and now supports HPGL and the new IFF-DR2D structured drawing format as well as PostScript and EPSF for importing into DTP software. The input can be as simple as two columns of numbers, or may include commands which define the exact format of the graph. All formatting options are available throughout the Amiga Intuition interface. *SciTech Software, 23 Stag Leys, Ashtead, Surrey, KT21 2TD, (011)-44-372-275775. Inquiry #204*

AMOS Professional

This latest package has over 200 new commands, taking the total up to well over 700. There is a 650-page brand new manual. All programs written using earlier versions of AMOS and Easy AMOS can be simply loaded into AMOS Professional. One of the most unique features is the on-line help which provides details on the command at the cursor position. *Europress Software, Europa House, Adlington Park, Macclesfield, Cheshire, England SK10 4NP, (011) 4462-585-9333. Inquiry #205*



ArtisticCLIPS Volume 1

Artistic Software announces the introduction of ArtisticCLIPS Vol. 1 in AEPS format. Unlike most clip art in EPS format, each clip contains an IFF bitmap header which provides an image on the screen for positioning, sizing, and cropping the clip. The clip itself prints without jaggies to the resolution of your printer. ArtisticCLIPS covers ten diverse subject areas ranging from animals to transportation. *Artistic Software, 55 Selwyn Place, Kanata, Ontario K2K 1P1, Canada, (613) 591-6039. Inquiry #206*

AsimVTR

AsimVTR ($89) is a high performance animation storage/playback program, combining both frame-accurate editing functions and real-time playback speeds. The AsimVTR uses all Amiga screen modes including HAM, EHB, and overscan; fully supports transparent display enhancers; runs on any stock Amiga; has extensive commands for loading, saving, and moving frames; works with any standard hard drive controller; and is not affected by complex motion as standard "ANIM format" is. *Asimware Innovations, 101 Country Club Drive, Hamilton, Ontario, L8K 5W4, (416) 578-4916. Inquiry #207*

Brilliance

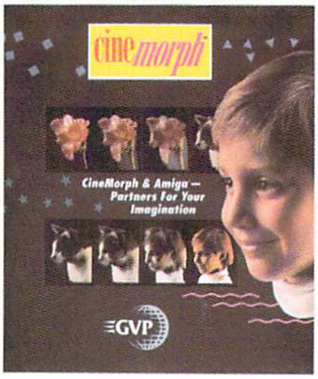
Brilliance ($249) is the new standard in Amiga Paint and Animation. Features include optimal performance and speed; supports all Amiga graphics modes including 24-bit, 256 color, and 8-bit ham; multiple picture and animation buffers; multiple brushes and anim-brushes; multiple levels of Undo and Redo; dynamic animation capabilities; and much, much more. *Digital Creations, P.O. Box 97, Folsom CA 95763-0097, Voice (916) 635-0475. Inquiry #208*

CanDo 2.0

This package now comes with an over 400 page manual (complete with index) in a 3 ring binder and slip case, eliminating the previous multiple manuals and readme files. When you upgrade, you will also receive a new 3 disk set of CanDo disks replacing any disks you may have received previously. New features include Script Bookmarking, SuperDuper, Object Layer Tool, Bug Basher, Configuration Utility, and DOS Notify. *INOVAtronics, Inc., Suite 209B, 8499 Greenville Ave., Dallas, TX 75231-2499, (214) 340-4991. Inquiry #209.*

CineMorph

CineMorph is simple to use and directly renders to Amiga modes, DCTV, HAM-E, as well as professional 24-bit devices such as GVP's IV24. Anything from a pair of static images, to frame sequences, to groups of sequences can be morphed to create static or full-motion morph effects. Other features include single-image warping, multi-speed morphing, AmigaGuide help menu, two morphing methods, and more. Requires AmigaDOS 1.3 or 2.0 and an Amiga with a minimum of 3MB RAM. *Great Valley Products, Inc., 600 Clark Avenue, King of Prussia, PA 19406, (215) 337-8770. Inquiry #210*

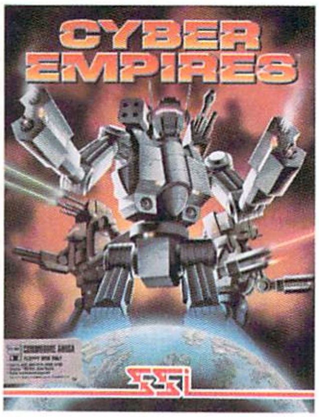


Clarity 16

Clarity 16 is a Stereo16-Bit Sampler for the Amiga. With the quality of 16-bit technology, the hardware cartridge contains two 16-bit Analog to Digital/Digital to Analog converters to allow stereo sound digitizing. The system can record sound from any suitable equipment or any 'Aux' or 'line' level signal source via the stereo PHONO sockets provided. Stereo PHONO outputs are provided for connection to an amplifier or mixer. Clarity 16 also contains a MIDI interface for use with a MIDI keyboard or similar, which is compatible with major commercial software. *Microdeal Limited, PO BOX 68, St. Austell Cornwall, England PL25 4YB, (011) 44-726-68020. Inquiry #211*

Cyber Empire

As an economically strategic game, Cyber Empires ($49.99) starts the player off with a limited amount of money and a country to control. The player can then employ spies, build factories and fortresses, institute taxes and purchase futuristic weaponry. The ultimate purpose is to gain control of the planet, Orion, by effectively allocating finances and leading an army of up to nine different types of Cybernetic juggernauts. Players can choose to battle in true arcade fashion and dominate enemy Cyborgs with lasers, missiles and flame-throwers. *Strategic Simulations, Inc., Dist. by Electronic Arts, 675 Almanor Ave., Ste.. 201, Sunnyvale, CA 94086-2901, (800)245-4525. Inquiry #212*



DAS Book

DAS Book ($29.95) is a completely re-rendered and revised Wedding Album animation originally found

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- Supports both 1GB (1000MB!) or ISO compatible 650MB removable disk cartridges.
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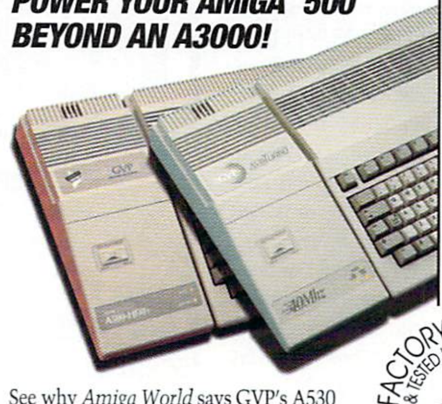

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See why *Amiga World* says GVP's A530 Turbo could be the "Best A500 Expansion Box Ever". With its 68EC030 CPU running at a blazing 40MHZ the A530 runs your software applications up to 10X faster — smoother animations, better multitasking, quicker windows and more...

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- Expandability for up to 7 SCSI devices, GVP's "Mini-Slot™" for optional add-ons such as GVP's A500 PC/286 Emulator, 68882 math processor (FPU)—optional for A530-Turbo.
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NOW YOU CAN RUN 1000'S OF PC COMPATIBLE SOFTWARE PACKAGES!

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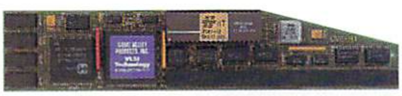

- MS-DOS, DR-DOS and Microsoft Windows applications capabilities.
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- Simultaneous PC and Amiga applications use.
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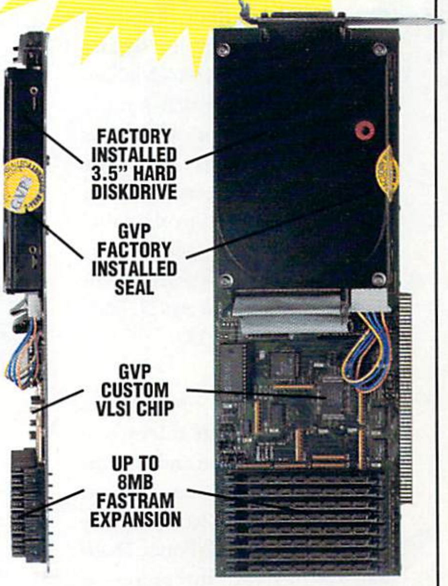
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Circle 123 on Reader Service card.

NEW PRODUCTS

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on Animattes: Wedding Series Volume I. This new two disk animation will automatically recombine and install itself in either RAM or hard drive and will run as easily as any standard Animatte. Requires either 5MB of memory or 3MB and a hard disk drive. An accelerator is suggested. *Electric Crayon Studio, 3624 N. 64th Street, Milwaukee, WI 53216, (414) 444-9981. Inquiry #213*

Essence

Apex Software Publishing has developed Essence ($79.95), additional Imagine-compatible algorithmic textures for use with Imagine, which gives users a library of even more surfaces for their objects. These additional textures range from simple textures like Hex, a tiling of colored hexagons, to a complex surface called Fractal Noise, which makes a turbulent, detail-rich natural looking coloring for objects like clouds, fire, planets, landscapes, or even dirt. The library adds over 65 new textures to the original 12 Impulse textures. *Apex Software Publishing, 405 El Camino Real Suite 121, Menlo Park, CA 94025, (415) 322-7532. Inquiry #214*

FontDesigner

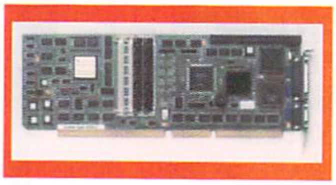
FontDesigner is an interactive program for creation and conversion of any fonts. Vector oriented fonts, symbols, or icons will be processed as Outline Fonts. These fonts can then be further processed in varying sizes using Desk Top Publishing Programs such as PageStream™, ProfessionalPage™, and Publishing Partner™. The fonts will be available for use on Laser Printers as well as Linotronics machines. They will also be available for use from the WorkBench as Intellifonts. *Pre'Spect Technics Inc., Box 53, Dorion, Qur., J7V 2K0, (514) 424-5596. Inquiry #215*

GenLock

G-Lock ($ 449) is completely software controllable through its user friendly control panel software, or through ARexx or the CLI. It can accept two composite or one Y/C inputs, and provides composite, Y/C, RGB, or YUV outputs at all times. Many adjustable parameters affecting the incoming video are available, including brightness, contrast, saturation, hue, sharpness, filtering, and gain. Full audio support is provided through two audio inputs which can be switched or mixed, and the output volume, bass, and treble can also be adjusted. *Great Valley Products, Inc., 600 Clark Ave., King of Prusia, PA 19406, (215) 337-8770. Inquiry #216*

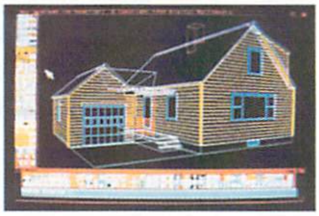
Golden Gate 486 SLC

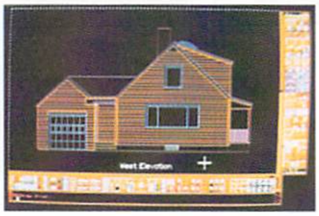
Golden Gate 486 SLC is an AT emulator with 25MHz 80486SLC SLC PC/AT emulator for the Amiga 2000/3000 with integrated 16MB RAM expansion. Golden Gate 486SLC further integrates a PC/AT IDE hard disk controller and optionally a PC/AT floppy disk controller for HD floppy disk drives up to 2,88MB. *Vortex Computersysteme, Dist. by Micro-Pace, 604 North Country Fair Dr., Champaign, IL 61821, (217) 356-1884. Inquiry #217*



GFX-CAD 3000

Grafx Computing has recently released GFX-CAD 3000 ($649). This package includes the long awaited XCAD 3000, incorporating the latest version of XCAD 2D and a much improved XCAD 3D. With XCAD 3D you can read XCAD 2D files, and write Imagine/Turbo-Silver files. With a 1MB graphics chip you can run all three programs simultaneously. You can thereby move elements from on program to another seamlessly, as if you were in a single program. GFXCAD 3000 also includes technical support by phone and a six month subscription to XPress. *Grafx Computing, 6680 Wiltsie Road, Panama, NY 14767, (716) 782-2468. Inquiry #218*





ImageFX

This feature-packed software package, which combines the traditional elements of image processing and editing with high-end special effects, allows the user to achieve stunning professional results on any CBM Amiga computer.

The 24-bit image manipulation features of this software allow the user to achieve spectacular results in image creation, retouching, and editing. Its easy-to-use morphing capabilities produce incredible cinematic quality output. ImageFX comes with a wealth of image processing tools for color correction and manipulation, image analysis, image transformation, and photographic adjustment. Developed for use with any Amiga model, ImageFX ($369) requires at least 1/2MB of chip RAM and 3MB of fast RAM. *Great Valley Products, Inc., 600 Clark Ave., King of Prussia, PA 19406, (215) 337-8770. Inquiry #219*

Krueger Instant Speed System

The Krueger Company is pleased to offer a high-speed low-cost 68030/68882 accelerator system for the Amiga family of computers. The Krueger Instant Speed System runs at 33MHz, is simple to install, and allows icon based switching to 68000 mode. The system allows an optional 512K of 32-bit SRAM memory on the board and is compatible with CSA's add-on memory board for additional 32-bit memory. The pricing without 32-bit memory is $295 and $339 with 512K of 32-bit memory. *The Krueger Company, 1544 W. Mineral RD., Tempe, AZ 85283, (800) 245-2235. Inquiry #220*

Megafortress: Operation Sledgehammer

For use with the award-winning Megafortress game, this first mission disk exposes you to new territory, new threats, and new targets in the Middle East. Along with confronting numerous threats from enemy fighters and SAMs, the player must master the art of resource management, knowing when, for example, to rendezvous for in-flight refueling. The player will be flying a fully renovated "super" B-52 Bomber with all the latest in weapons and avionics high technology. New weapons featured in this datadisk are: ASM-119A Penguin anti-ship missile, the CBU-95 Fuel Air Explosive, the Iranian SA-12A and HAWK SAMs, the Libyan SA-10, MiG-25s, and Mirage F-1s. Operation Sledgehammer's missions are portrayed in stunning 256 color VGA three-dimensional graphics. *Three-Sixty Pacific, Inc., 2105 South Bascom Ave., Suite 165, Campbell, CA 95008, (408) 879-9144. Inquiry #221*

Monitor Master

Monitor Master ($128) allows the connection of an EGA/VGA graphics card and the Amiga video output on a VGA/Multisync monitor. Monitor Master is op

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Finally! True Cinematic Quality Morphing For The Amiga®!

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NEW PRODUCTS
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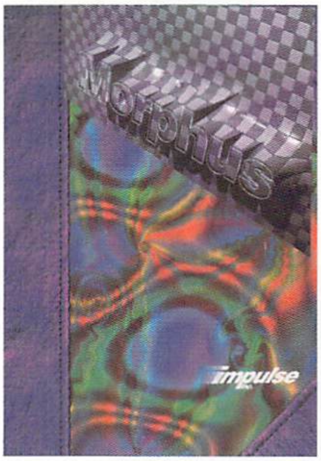
tional to the vortex PC/AT emulators Golden Gate 386SX and Golden Gate 486SLC. Vortex *Computersysteme, Dist. by Micro-Pace, 604 North Country Fair Dr., Champaign, IL 61821, (217) 356-1884. Inquiry #222*

Morphus

Impulse is proud to announce the release of Morphus ($119.95), a 3D object manipulation tool for the Amiga Computer. Morphus takes Imagine objects and allows the user to manipulate these objects with very precise mathematical control. Some of the effects that the you can attain are: Bend; Twist; Wave; Ripple; Shear; Oscillate. *Impulse, Inc., 8416 Xerxes Ave. N., Brooklyn Park, MN 55444, (612) 425-0557. Inquiry #223*

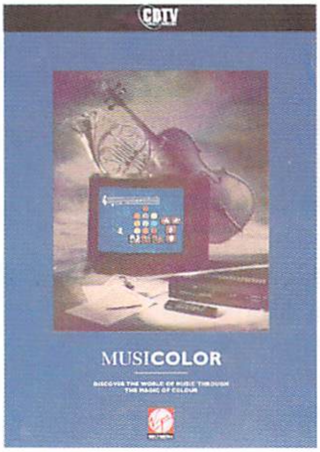


MFC 2 <TM> Multiface Card

The MultiFaceCard ($295) is an expansion for the Amiga 2000 and 3000. It allows the use of more ports, thereby increasing the number of peripherals usable by your Amiga. This card may also be used in an external expansion chassis for the Amiga 500. *Pre'spect Technics Inc., B 53, Rte. Lotbinierre, Dorion, Quebec, J7V 2K0, Canada, (514) 944-9696. Inquiry #224*

MusiColor

Learn how to read music and how to compose your own in this CDTV adaptation of the Tobin Music System. Features include: Learn music theory as you compose harmonically; write your own music on screen and hear it being played; scintillating color graphics; aural tests to aid learning; easy to follow and fun to use instructions on screen; and much more. Good for all ages and requires CDTV player. Virgin Multimedia. *Virgin Games Ltd., 18061 Fitch Ave., Irvine, CA 92714, (714) 833-8710. Inquiry #225*



Oxyd

A terrible thing has happened to the world inside your computer: over night the lifesupporting Oxyds have closed up. Without the oxygen emitted by the Oxyds the unique world of bits and bytes is threatened. Your help is needed desperately. You're asked to go on a risky expedition into the mysterious landscapes of Oxyd and open the Oxyds in order to save this wonderful world from imminent destruction. *Dongleware Publishing, Inc., P.O. Box 391829, Cambridge, MA 02139-0018, (617) 497-1130. Inquiry #226*

PS-400 Full-page Scanner

The PS-400 is the first monochrome scanning wand available for Amiga computers in the United States. It comes bundled with Touch-Up and Migraph OCR. Its features includes: full-page scanning with an 8.5 x 14-inch scanning area; three text scanning resolutions; compact interface which uses the parallel port; four dither patterns for scanning colors and halftones and one line art/text setting; and more. The retail price of the PS-400 with Touch-Up and Migraph OCR is $899. The retail price for the optional sheet feeder is $249. The retail price of the PS-400 with Touch-up (without Migraph OCR) is $799. *Migraph Inc., 32700 Pacific Highway S., Suite 12, Federal Way, WA 98003, (206) 838-4677. Inquiry #227*

Principles of Composition

Principles of Composition ($68.95) is a computer program that teaches the fundamentals of composition and design. You're taught about color, balance, rhythm, pattern, contrast, unity, gradation, harmony, and much more. *Art Instruction Software, 38 Balsam Drive, Medford, NY 11763. Inquiry #228*

Scala Multimedia 200

Scala Inc. announces the release of Scala Multimedia version 2.0. Scala MM200 is a multimedia authoring system that allows professional and novice users to compose on-screen presentations in a fast and efficient manner. Presentations with Scala can include texts, logos, cludes all of the necessary resources and tools to put together a full multimedia presentation—right out of the box. Included are over 70 artist designed backgrounds, over 100 symbols, music files, animations and 17 typeface collections designed especially for on-screen presentation. Scala contains over 70 transitions or wipes which can be applied to text and graphics on a single page or as exciting transitions between pages in a presentation. *Scala, Inc., 12110 Sunset Hills RD., Suite 100, Reston, Virginia 22090, (703) 709-8043. Inquiry #229*

TexTiles Volumes I-IV

Mannikin Sceptre Graphics announces TexTiles ($49.99 per vol.), a premier collection of true color, seamless images for use in three-dimensional rendering, image processing, page layout, and design programs. Each texture measures 256 by 256 pixels, reducing memory requirements and allowing users with minimal memory configurations to enjoy the benefit of true color image mapping. *Mannikin Sceptre Graphics, Suite 285, 3208-C E. Colonial Dr., Orlando, Fl 32803, (407) 644-9547. Inquiry #230*

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Trifector offers the top three computer peripherals in your choice of several packages and options to fit your computer and your budget. Trifector is a high performance 16-bit IDE (AT) hard card for connecting low-cost IDE hard drives to an Amiga computer. Quick block transfers combined with intelligent caching make IDE drives

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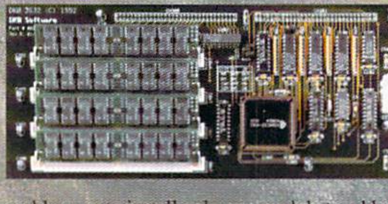

- Now you can go beyond 4 Megabytes of 32 Bit memory.
- Expandable up to 112 Megabytes of 32 Bit memory.
- State-of-the-Art design breaks the 32 Megabyte limit and allows the use of different size memory modules in the same bank.
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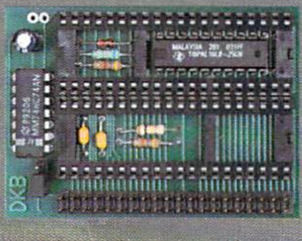
- Compatible with the MegAChip 2000/500™ and MultiStart II™ ROM board.
- Compatible with the Vector 030-25 accelerator from IVS.
- Compatible with the Video Toaster system, Amiga A2500, A2000HDA/100.
- Compatible with the CSA Rocket Launcher™ 50MHz upgrade for the A2630 accelerator card.

MultiStart II™

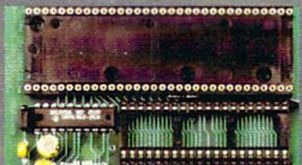
For the A500, A600 & A2000



Allows A500 A600 and A2000 owners to install Kickstart V2.0 and V1.3 ROMs and switch between them with the keyboard. No software required for operation. Lets you stay compatible with your software. No external wires or switches required. This MultiStart is compatible with the MegAChip 2000/500, VXL030,, and CSA MMR accelerators for the A500 and also most other products that install inside the A500. This is the ROM switcher that Commodore Amiga Technical Support sells to developers.

KwikStart II™

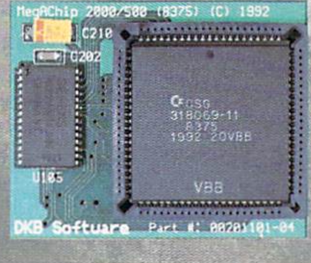
Use Kicksart 2.0 in your Amiga A1000



Allows A1000 owners to install V1.3 and V2.0 Kickstart™ ROMs and switch between them. Upgrade to the latest operating system and still be compatible with software that requires Kickstart V1.3. Use the latest V2.0 operating system without using up your system memory. Fully compatible with Kickstart V2.0 and Workbench V2.0. Uses standard Commodore ROMs for easy upgrades. Allows you to boot faster because you only need to load Workbench. Works with Kickstart V2.0, V1.3, and V1.2. Compatible with the Insider memory expansion boards. Also compatible with most processor accelerators. Keyboard switchable between two ROMs or between one ROM and disk based Kickstart. No external wires or switches required

MegAChip 2000/500™

2 Megabytes of Chip RAM for the Amiga A2000, A500, CDTV & Video Toaster



"The MegAChip 2000/500 should be standard equipment on every Video Toaster System."

Jim Plant - Publisher/Editor Video Toaster User

"The MegAChip 2000/500 is a must own for anyone that wants to use Toaster Paint™ or Multitask with the Video Toaster."

Lee Stranahan - Writer of the Video Toaster 2.0 manual Tutorials also featured in the Desktop Images Video Toaster Tutorial tapes.

"I would advise Toaster users who make use of Toaster Paint or LightWave™ to add DKB's MegAChip 2000/500 to your system as soon as possible."

Tim Doherty - Video Toaster User

The MegAChip 2000/500 allows you to upgrade your Video Toaster, Amiga A2000, A500, and CDTV™ to 2 Megabytes of Graphics Memory.

The MegAChip 2000/500 is a needed addition to your system if you are working with Desktop Video, 3D Rendering & Animation, 24-Bit Paint, Multimedia or Desktop Publishing.

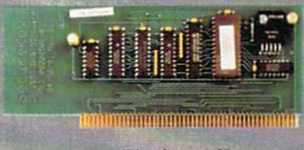
Scala MultiMedia 200 requires 2MB of Chip RAM which means an A500 or A2000 needs a MegAChip 2000/500 installed to use this software

Fully compatible with the Video Toaster™, OpalVision™, VLab™, IV-24™, DCTV™, Ham-E™, and most genlocks and framebuffers.

Fully compatible with most 68030 and 68040 accelerator cards.

SecureKey™

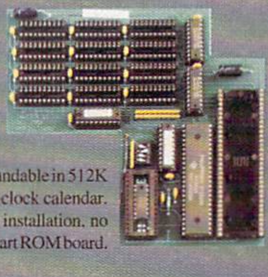
Access Control System For The A2000 & A3000



The SecureKey is a hardware security device that installs in any A2000 or A3000 or Video Toaster system. The SecureKey allows you to have one access code for your Amiga. The SecureKey will not allow access to your Amiga without the right security code, period. You can't boot off of a floppy or bypass it in any manner. If you need to keep your system safe from unauthorized use - Want to make sure that no one can delete files from your harddrive or steal your work then you need the SecureKey. This means that if your system has files such as animations, documents, presentations, C code, or any type of confidential information, you can be assured that the files on your harddrive are safe. Keep your Amiga safe from those that may otherwise unknowingly destroy your information. Requires Kickstart V1.3 or above. The SecureKey is fully compatible with Kickstart V2.0.

Insider II™

1.5 Meg in the A1000



From the maker of the first internal RAM board for the Amiga 1000: the original Insider™ by DKB Software. Allows A1000 owners to add up to 1.5 Megs of Fast RAM internally. User expandable in 512K increments using 256K x 4 DRAMs. Includes battery-backed clock calendar. Comes with software for the clock and testing RAM. Simple installation, no soldering required. The Insider II is compatible with the KwikStart ROM board. Also compatible with most processor accelerators.

DKB Software
50240 W.Pontiac Tr.
Wixom, MI 48393
Sales (313) 960-8751
FAX (313) 960-8752
Technical Support (313) 960-8750

Contact your local dealer or call for information.

MegAChip 2000/500 is a trademark of DKB Software. Video Toaster is a trademark of Newtek, Inc. CDTV, A500, and A2000 are trademarks of Commodore-Amiga, Inc. IV-24 is a trademark of Great Valley Products, Inc. DCTV is a trademark of Digital Creations. Ham-E is a trademark of Black Belt Systems. OpalVision is a trademark of Centaur Development.

All Products come with a Full One-Year Warranty. Dealer inquiries welcome.

Circle 194 on Reader Service card.

NEW PRODUCTS
and other neat stuff

on this card as fast or faster than most 16-bit SCSI cards. The hard card configuration has ample physical space and mounting holes to attach a 2.5 or 3.5-inch hard drive on the board. One or two drives are supported on this IDE interface while up to seven drives are supported by Trifecta's SCSI interface. Prices range from $199.96 to $349.96. *ICD, Inc., 1220 Rock Street, Rockford, IL 61101, (815) 968-2228. Inquiry #231*

24-Bit Maps - U.S.A.

U.S. and states gradated in full 24 bits. These can be easily added to any presentation so you can add titles and legends to show your maps locations and point out cities in video or slides. These files are JPeg compressed on each disk for easy retrieval. Price: $38. *CeV Design, 61 Clewley Road, Medford, MA 02155, (617) 391-9224. Inquiry #232*

VIDEOMASTER

Videomaster combines the complexity of a Video Digitizer with Sound Sampler in a SINGLE easy to use low cost unit, to bring you the ultimate home Video/Audio editing package. It will allow you to record Monochrome, quarter screen pictures at speeds up to 25/30 frames per second providing ultra smooth playback at high speeds. Videomaster can produce great 'GREY' scale pictures from any video source with a Pause or Still Frame facility. Other features include a Sound Sampler and a Video Sequencer. This package contains the Videomaster Video Digitizing and Sound Sampling hardware unit, TRI-Color filters for Color Camera use, comprehensive user guide and full System Software. *Microdeal Limited, Distributed by Mich Tron, 3201 Drummond Plaza, Newark, DE 19711, (302) 454-7946. Inquiry #233*

Volume 10 V2.0: The Illustrator: Animation Background Scenery in 24-bits

This is a collection that features landscapes, street scenes, and other areas of location for portraying a backdrop for almost any type of entertaining video. Scenes have ultimate colors and shades workable in DCTV or the Video Toaster in using to intro videos to set a mood. Set of 4 disks for $30. *CeV Design, 61 Clewley Road, Medford, MA 02155, (617) 391-9224. Inquiry #234*

XTractor+

XTractor, the ultimate combination chip puller/torx screwdriver, is now available. This enhanced Amiga tool pulls both PLCC and DIP chips. Torx #10 screwdriver allows for problem free entry into motherboard. XTractor is also available without torx driver. Retail price is $12.95 for XTractor+ with torx, and $9.95 without torx. *Better Concepts, Inc., 22 North Main Street, Suite 393, New City, NY 10956, (914) 639-5095. Inquiry #235*

Zoetrope

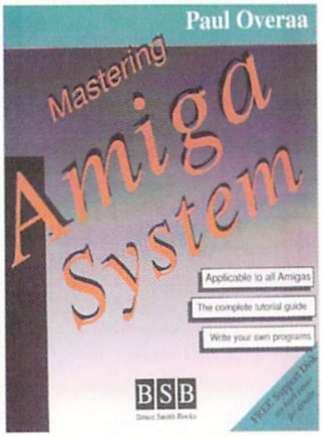
Zoetrope puts you right on the cutting edge of animation. Its high end features satisfy even the most demanding of professional users. Its unique layered structure makes it easy-to-use for the casual animator. Spin and swoop titles and images through 3D space. Apply computer power to classic "cel" animation. Overlay and underlay your favorite pictures or animations. *Mainstream America, 1012 South Main Street, Taylor, PA 18517, (800) 234-7001. Inquiry #236*

•Books•

Mastering Amiga System

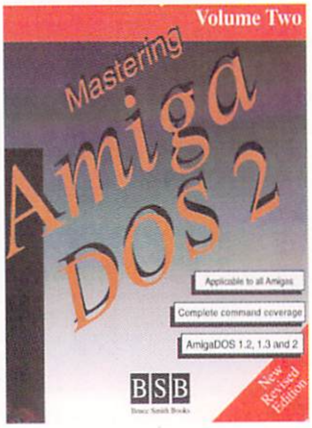
Serious Amiga programmers need to use the Amiga's operating system to write legal, portable and efficient programs. Paul Overa shares his experience in this introduction to system programming in the C language.

The author keeps it specific and presents skeleton programs which are fully documented so that they can be followed by the newcomer to Amiga programming. The larger programs are fully-fledged examples which can serve as templates for the reader's own ideas. *Bruce Smith Books, P.O. Box 382, St. Albans, Herts, AL2 3BR, England. Inquiry #237*



Mastering Amiga DOS 2, Volume 2

Mastering Amiga DOS 2, Volume 2 is a complete A to Z reference to DOS commands and the current version has full details up to version 2.04. The action of each command is explained and examples to try are provided. Chapters on AmigaDOS error codes, viruses, the Interchange File Format (IFF), and the Mountlist complete this valuable guide. *Bruce Smith Books, P.O. Box 382, St. Albans, Herts, AL2 3BR, England. Inquiry #238*



Mastering Amiga - AMOS

Anyone following the various series on AMOS will find Mastering Amiga AMOS a handy reference and source of programming ideas. A free disk is available with all the example programs on it so you can try out your AMOS programming right form the start. *Bruce Smith Books Limited, PO Box 382, St. Albans, Herts AL2 3JD, England, (011) 44-923-894355. Inquiry #239*

Vidia Releases Style book for Professional Page 3.0

Vidia's new Professional Page quick reference book ($7.95) focuses on typefaces. The book shows samples of type in sizes ranging from 13 to 120 points, styles like bold, italic, reverse, underline, outline, and various tracking settings. One full page is dedicated to each Compugraphic or PostScript typeface. The book also includes keyboard equivalents for Professional Page and Article Editor, and a guide to text formatting codes. *Vidia, P.O. Box 1180, Manhattan Beach, CA 90266, (310) 379-7139. Inquiry #240*

•Other Neat Stuff•

ASDG Makes Amiga User Groups An Offer They Shouldn't Refuse

As part of ASDG's continuing commitment to the Amiga community, Amiga user groups can receive free promotional materials directly from the company. To receive the materials (which includes video tapes, literature, buttons, and other items pertaining to ADPro and its new MorphPlus video effects package), officers of registered Amiga user groups simply have to request them from ASDG's sales manager, Ms. Gina Cerniglia. *ASDG, Inc., 925 Stewart Street, Madision, WI 53713, (608) 237-6585. Inquiry #241*

Basement Recordings Workshops

Basement Recordings in conjunction with Long Island University

THE PREFERRED PERIPHERALS.

Mercury 28MHz or 35MHz – The fastest, most expandable Amiga™ 3000 accelerator in the world. Over 26 MIPS performance at 35MHz!

68040 ACCELERATOR FOR THE AMIGA 3000™
040
FOR THE AMIGA 3000
PROGRESSIVE PERIPHERALS & SOFTWARE

Progressive 040/3000 25MHz – 040 power that fits any budget. "The Progressive 040/3000 works flawlessly." *(Amiga World, January 1992)*

PROGRESSIVE
040/500
68040 Accelerator for the Amiga™ 500
PROGRESSIVE PERIPHERALS & SOFTWARE

Progressive 040/500 28MHz or 33MHz – Up to 8MB 32-bit RAM, switchable between AmigaDOS™ 1.3 & 2.0 with on-board 2.0 ROM. The world's fastest Amiga™ 500 accelerator!

Zeus
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FAST SCSI-2 DMA HARD DRIVE CONTROLLER
+ 28MHz or 33MHz 68040 ACCELERATOR
+ 64MB HIGH-SPEED 32-bit RAM EXPANSION
= THE ULTIMATE AMIGA 2000 POWER PERIPHERAL!
PROGRESSIVE PERIPHERALS & SOFTWARE

Zeus 28MHz or 33MHz – The most powerful accelerator for the Amiga™ 2000. Zeus is the only true **FAST** SCSI-2 DMA controller with 28MHz or 33MHz 040 power and 64MB RAM expansion! AmigaDOS™ 1.3 and 2.0 compatible.

68040 Accelerator Card for Amiga® 2000 Series Computers
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PROGRESSIVE PERIPHERALS & SOFTWARE

Progressive 040/2000 28MHz or 33MHz – Fast, compatible '040-able' power for the Amiga™ 2000, expandable to 32MB RAM. "The PP&S 040 guarantees that your Amiga™ 2000 will not lose its technological edge." *(Amazing Computing, November, 1992)*

Progressive Peripheral's 040 accelerators will make your Amiga™ 500, 2000 or 3000 one of the fastest in the world. Whatever your application – professional desktop video, 3-D modeling, rendering, animation, desktop publishing, graphic arts, CAD – a Progressive Peripherals 040 will get it done faster.

Progressive 040's aren't just fast, they're affordable! Choose 28MHz or 33MHz to fit your budget. Avoid overpriced, "custom" RAM expansion. Mercury, Zeus, and Progressive's 040/2000 use industry-standard 1MBx8 or 4MBx8 SIMM modules for maximum performance and value.

Discover what thousands of accelerated Amiga™ professionals already know: a Progressive 040 accelerator is the best way to power up your Amiga.™ Ask your preferred Amiga™ dealer for the latest Progressive 040 pricing and start accelerating today!

Progressive Peripherals has relocated to serve you better:

PROGRESSIVE PERIPHERALS INC.

938 Quail Street, Lakewood, Colorado 80215-5513
Telephone: +01 (303) 238-5555 • Fax: +01 (303) 235-0600 • 24-Hour BBS: +01 (303) 238-6326

The graphic effects on this page were generated in seconds by Rambrandt Personal, Tecsoft's TV Paint and Mercury.

Circle 168 on Reader Service card.

NEW PRODUCTS
and other neat stuff

will hold multi-media workshops through out this year and 1993. All educational activities will focus on the Amiga computer. Demonstrations will focus on Desktop Video, Multimedia, Music, Desktop Publishing and the latest in Digital Music Equipment. *Basement Recordings, 348 East 51st Street, Brooklyn, NY 11203, (718) 485-7120. Inquiry #242*

CREOTEC Corporation

Let CREOTEC Corporation produce an interactive multimedia CD-ROM application for your company or agency with their VidDISC Application Development System for CDTV. VidDISC is an interactive multimedia applications environment, designed specifically for CDTV.

CREOTEC will handle all aspects of the production of your interactive multimedia application, or provide you with an on-site license for the VidDISC Authoring System so that you can do the production in-house (available first quarter 1993). *CREOTEC Corporation, 122 West Carpenter Fwy, Suite 440, LB 17, Irving, TX 75034, (214) 717-1272. Inquiry #243*

Digital Collage

Every month, Digital Collage features ten new texture tiles (300x300 HAM), five 16-color full overscan backdrops, and 5 to 10 DeluxePaint motion clips, all on two disks! For as little as $5 a month, customers can have both Digital Collage disks mailed to their business or studio. *DRC Sequential Graphics, 57 East 400 North #9, Provo, UT 84606-2987, (801) 373-9579. Inquiry #244*

GVP Announces G-Force040 Speed Increase

Great Valley Products reported a significant speed enhancement to their G-Force040 accelerator for the A2000. By making a simple adjustment to the start-up sequence, users will achieve a dramatic increase in the speed of floating-point intensive operations. *Great Valley Products, Inc., 600 Clark Ave., King of Prussia, PA 19406, (215) 337-8770. Inquiry #245*

Ingram Micro to Distribute Supra Modems

Supra Corporation has signed Ingram Micro as a national distributor for their complete modem line. Ingram Micro is the largest distributor in the world of microcomputers, peripherals, and software. Ingram will distribute the full line of Supra fax and data modems, including the recently-released SupraFAXModem™ V.32bis. *Supra Corporation, 7101 Supra Drive SW, Albany, OR 97321, (503) 967-2400. Inquiry #246*

InterPlay Productions

Effective October 1, 1992 the Castle has a new address and phone number. *Interplay Productions, 17922 Fitch Avenue, Irvine, CA 92714, (714) 553-6655. Inquiry #247*

Mach Universe

Mach Universe has a new address and phone number. Further, the price for the Taming The Wave package has been changed from $99.95 to $119.95. Mach Universe, 3019 Pico Blvd., Santa Monica, CA 90405, (310) 315-1750. Inquiry #248

MorphPlus Improvements

MorphPlus now has a completely automatic method for generation of any kind of Amiga ANIMs—even AGA! Two lower quality but much faster rendering modes have been added. FRED has been made more powerful and easier to use by adding an automatic pre and post script capability to the Invoke ADPro command. These changes were all sugested by ASDG customers as a result of the first month's sales. This new release is being sent free of charge to all registered owners. *ASDG Incorporated, 925 Stewart Street, Madison, WI 53713, (608) 273-6585. Inquiry #249*

Supra Corporation

Through a unique offer from Supra, users of the SupraFAXModem V.32 and V.32bis can upgrade their modems to the latest firmware which offers multiple performance enhancements and adds capabilities for error-free faxes and automatic handling of in-coming calls. A sophisticated caller ID option is also available for a nominal fee of $19.95 through Nov. 30, 1992.

The upgrade is available to all registered customers who own SupraFAXModem V.32 and V.32bis systems. Because of high-demand, the upgrade isn't available to call-in customers. *Supra Corporation, 7101 Supra Drive SW, Albany, OR 97321, (503) 967-2400. Inquiry #250*

Toast and Coffee/ Videographix Today

Toast and Coffee/Videographix Today is a videotape periodical focussing on desktop video and uses that very medium to bring its unique blend of tips and techniques, product information, excursions to user facilities, and much more to its subscribers. The publication is designed to incorporate subscriber input as well as materials sent in by subscribers for possible inclusion in a segment called "The Gallery."

Subscribers receive a 60-minute videotape every other month for an annual subscription rate of $48. *Videographix, Inc., 12231 Nicollet Ave. S., Burnsville, MN 55337, (800) 322-4545. Inquiry #251*

•AC•

How to get your products listed in New Products and Other Neat Stuff

Send a descriptive press release and two copies of the software or hardware. Please include product name, price, company name, full address, and telephone number. Our mailing address is: PiM Publications, Attn: New Products Editor, P.O. Box 2140, Fall River, MA 02722-2140. For UPS and Federal Express, our address is PiM Publications, Attn: New Products Editor, 1 Currant Place, Currant Rd., Fall River Industrial Park, Fall River, MA 02720-7160.

Correction:

In the December issue of Amazing Computing (AC V7.12), we featured the ASDG product CygnusEd in the listings of the Reader's Choice Awards. We misspelled the name of the product in the article. The proper spelling for the product is CygnusEd. We apologize for any confusion this may have caused.

AC

New Products and Other Neat Stuff is compiled by Elizabeth Harris

INTRODUCING THE WAVE OF THE FUTURE

The SAS/C® Development System, Version 6

Ride the wave of the future with our new release of the SAS/C Development System—Version 6. It's fast, flexible, and powerful, offering you new ways of producing the most efficient code for the Amiga®. Explore a whole new world of development capabilities with these new Version 6 features and enhancements:

- ○ an integrated environment
- ○ fully ANSI-compliant compiler and libraries
- ○ improved CodeProbe debugger
- ○ new global and peephole optimizers
- ○ greatly enhanced error and warning messages
- ○ all new documentation
- ○ increased AREXX support
- ○ online help
- ○ free technical support.

Use the development system that Commodore® relied on to create Release 2 of the Commodore Amiga operating system and uncover the treasures it holds! To order Version 6 of the SAS/C Development System or for a free brochure, call SAS Institute at 919-677-8000, extension 7001.

If you're currently using another commercial C compiler, call us for information on our special trade-in offer!

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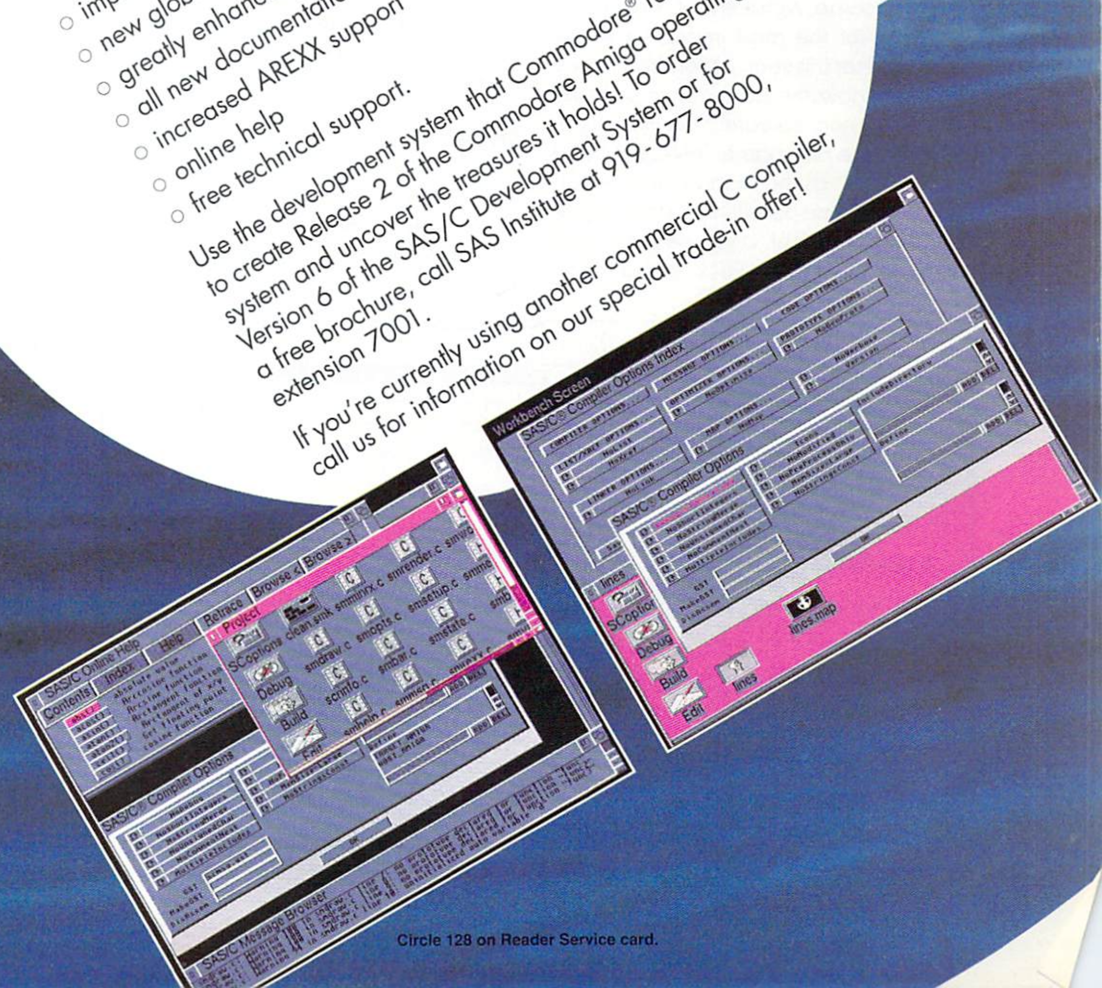


Circle 128 on Reader Service card.

REVIEWS

FinalCopy II

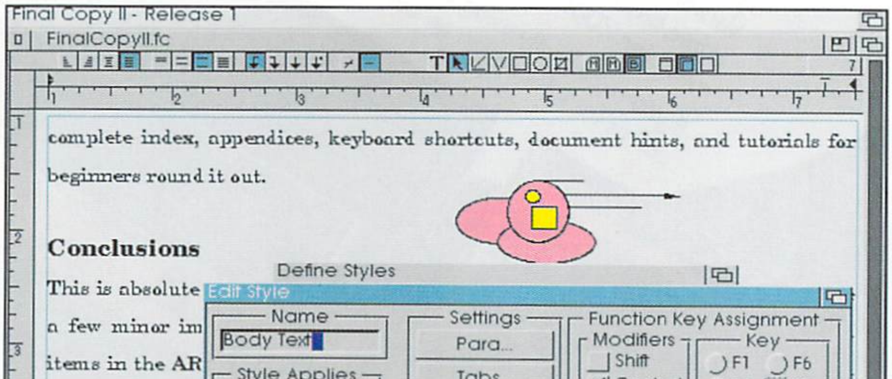
by Merrill Callaway

FinalCopy II is a completely new product, even though it is offered as an upgrade to the original *FinalCopy* which came out last spring. This new package from SoftWood eliminates my gripes and exceeds my desires regarding the older version. After my first review of FinalCopy, I wasn't ready to give up *WordPerfect*, mostly because of the poor ARexx support and the impossibility of making macros do frequently needed things like change the font to italic or bold. I am grateful that SoftWood takes criticism constructively. After a short time with FinalCopy II, I'm happy to scrap WordPerfect. Hats off to SoftWood for the most improved ARexx command set this year. At SoftWood, they still don't know the name of their ARexx port. (Beginners beware: Your first document has the port name "FINALC.1" and not "FinalC.1" as the manual states—Port names are Case Sensitive!) I can forgive that minor oversight, because they have implemented a new ARexx "status" command which allows you to get the information about your document. SoftWood has neatly implemented this formerly missing half of the ARexx command set and added many new features with ARexx control to the main program to make word processing on the Amiga second to none, at last! SoftWood includes several useful ARexx macros to do the very things I really need, such as quickly changing text fonts to italic, bold, or normal. I am pleased that the new ARexx capability lets me program my function keys to do some of the same things WordPerfect did, so I don't have to retrain my brain much. I renamed, for instance, the "ToBold" macro to "AMacro_6" and now when I hit Function Key F6, the selected text changes to bold, just as in WordPerfect. The FinalCopy II fonts are so named that one macro will change any included font to bold. The new ARexx capability is just one of the exciting and important improvements to FinalCopy.

Styles

You can set styles in FinalCopy II. User-settable styles are what IBM clones claim make WordPerfect 5.1 so great. A style is something that occurs in desktop publishing packages on the Amiga. A style—sometimes called a "tag"—is simply a collection of settings applied to a block of text. These settings may be typeface and size (the font) or obliqueness or width; the leading (space between lines); it may be how one wants the paragraph to be indented or justified; or it may be tab settings; or any combination of your preferences for how the text should look. For instance, in an article, I make a style for the "body text" and "subheadings" rather than choosing to open a font, set its size, and set justification every time I type a subheading or switch back to the body of text. Once I set a style, I open the FinalCopy II style menu and by style selection, choose all the settings at once for any particular piece of text. The settings remain in effect as long as I don't change to another style.

Within a style, if I need to make something italic, I just select it as a block and then hit F3 (I renamed "ToItalic" as "AMacro_3"). When I hit F3, the body text style is replaced by italic text. Overall, the rest of the settings are not replaced during this operation, but the text changes to italic. However, if I again select this same italic text and select "body text" as the style, the italics will revert to upright text. This is because FinalCopy II implements italics and bold as entire fonts; and style settings must name a font. FinalCopy II uses its own (somewhat expensive) proprietary fonts, which do not behave the same as regular PostScript fonts. This is unfortunate when we compare it to a DTP package such as *PageStream2.1* by Soft-Logik. In the DTP software, you may "tag" text defined to be without any "type style" like italic, bold, or normal. Then, when you choose that "tag" for any text (a "tag" in PageStream equals a "style" in FinalCopy II), any bold text remains bold, and any italics remain italics, and don't revert to "normal" as they would in FinalCopy II. So you have to remember to set things such as bold and italics after you set your style. Changing styles in FinalCopy II will lose all



complete index, appendices, keyboard shortcuts, document hints, and tutorials for beginners round it out.

Conclusions

This is absolute

a few minor im

items in the AR

and italic, but

SoftWood excee

editor and a

recommendatio

Name: Body Text

Style Applies:
☑ Para. Settings
☑ Tab Settings
☑ Type Settings

Modifiers:
☐ Shift
☑ Control
☐ Alt

☑ Assign

Key: ○ F1 ○ F2 ○ F3 ○ F4 ○ F5 ○ F6 ○ F7 ○ F8 ● F9 ○ F10 your italic and bold settings. I'd like to see this fixed at some point. Nevertheless, the fact that you can set style sheets at all really sets FinalCopy II ahead.

New Preferences

I appreciate the way you can now set the screen exactly. Choose a display of two, four, eight, or 16 colors, interlaced or not, WorkBench or Custom. You may set all the colors such as a pleasant off-white for the background. In 16-color mode, the program slows noticeably, but it displays graphics better. I like four colors for general use. Eight-color mode remaps screen colors whenever you load graphics and distracts you. You never know what colors will show up in your menu! All the preferences may now be read or set from ARexx, and there are new buttons for making default prefs. The printer prefs may be saved without having to print something, which fixes a former gripe of mine. Everything you need to set, such as tabs, time, date, page numbering style, and so on, has an intuitive gadget, menu, or requester to do it. You may temporarily "use" or "save" as default any preference. There are settings for ASCII text import/export, startup preferences, speller prefs, and hyphenation prefs. One of the less obvious settings is the screen dpi which really translates to the magnification of a "normal" screen. On an interlaced Custom Screen, I find that 90 by 82 dpi just fills up the screen space with the text area of an 8.5- by 11-inch page with one-inch margins to the sides, giving a nice, large display of 12-point type. You may menu-select magnified views as well. The new version has better magnification numbers. Speaking of the screen, one of the things I like is the speed of FinalCopy II. On my A3000, PageStream refreshes the screen a little too slowly to input WYSIWYG text comfortably. In FinalCopy II, however, I can't out-type the screen refresh, and scrolling is very fast and smooth.

Top, top and side, or no rulers may be set from gadgets or from preferences, making page measuring simple. Lines showing the X,Y-position of the I-beam cursor or the object cursor on the rulers insure precision. Tab settings may be set at regular intervals via preferences, or manually set—along with indents and margins—from the top ruler. Units of measure and even window size may be "saved" as defaults or "used" for the session. Page guides for print area, edit area, and the header/footer areas round out the display preferences.

Document Color

A really slick Document Color preferences requester lets you define the colors for text, boxes, and ovals. Depending on how many colors you choose for the screen, these colors may or may not appear on screen, but they will print on your color printer. By clicking and holding the left mouse button, you may see the color you've set for an object in a small color panel attached to the cursor.

Similarities with DTP Packages: Object Drawing Tools

FinalCopy II has object drawing tools! You may dress up your documents with straight lines, filled or unfilled boxes, and ovals, as well as load, crop, and position IFF or IFF-24 images. You may flow text around objects and set transparent color. There is an object pointer as well as a text pointer, just like in a DTP package. Resizing, moving, and even snapping to ruler markings for alignment capability is supported. While definitely not PageStream 2.1, FinalCopy II has the power to produce elegant newsletters and attractively accented publications and flyers. The speed and ease make FinalCopy II natural to use for many projects.

Master Pages

The left and right master pages are another similarity to DTP. You may put text such as page numbers, headers, and footers on master pages, and edit these pages just once. This text will then appear on every page of the document. There is one feature that even PageStream 2.1 doesn't have: The automatic production of computer manual-page formats with wide margins to the left-hand side no matter whether it's a right or a left page. With FinalCopy II you may set these alternating margins merely by clicking on a "left-right" button and setting margins. You may access either the left or the right master page or the main body text by clicking on buttons at the top of the screen. Drawing tools and an IFF cropping tool have gadgets, too. At the right-hand side a page number button takes you forward when you click the mouse on it; backwards (Shift-click); to the top (Alt-Shift-click); and to the end (Alt-click). One glitch I noticed is that the mouse pointer disappears during a Shift-click until you move the mouse. There is a Go To Page item in the Page menu as well.

Sorting, Merges, Updates, and Addition

A handy Sort item in the Extra Menu sorts paragraphs according to their text content. You may specify high to low or low to high. Merging data with form letters or standardized documents is easy with FinalCopy II. Separate data and documents are prepared and merged at time of printing for customized output. If you need to update the time and/or date in an entire document or just a paragraph, select the text and use the Update items in the edit menu.

This little word processor has the handiest column addition of numbers I've ever seen. Create a column of numbers somewhere. Then with the mouse pointer set to the "Text" tool, press the Alt key while dragging a "marquee" around the numbers from the upper left to the lower right. Then put the cursor where you want the answer to go. Select "Paste" from the edit menu or hit Right Amiga - V and the answer appears!

Other Goodies

FinalCopy II sports document statistics and custom styles pre-programmed to do four levels of outlines for you. Sections may be "promoted" or "demoted" in the hierarchy, too. SoftWood has a sterling reputation for Spellers and Thesaurus software. The Speller and the Thesaurus are top flight. I raved about the Printer Drivers with FinalCopy II. If ever there was a slick printer driver that's absolutely foolproof, here it is. The PostScript driver is the fastest one I own. The manual? A useful work of art. The only mistakes I could find were the incorrect name of the ARexx port, and a few too many pages to fit the spiral binding size chosen. A complete index, appendices, keyboard shortcuts, document hints, and tutorials for beginners round it out.

Conclusions

This is a superlative Amiga Word Processor. I'd like to see a few minor improvements such as the ability to name the Function Key menu items in the ARexx menu, and a "no type style" selection that won't overwrite bold and italic, but I honestly cannot think of anything else I'd add or improve. SoftWood exceeded my wish list. This package neatly fills the gap between an editor and a full blown DTP package.

FinalCopy II
SoftWood, Inc.
P.O. Box 50178
Phoenix, AZ 85076
(800) 247-8330
(602) 431-9151
Inquiry #200

KindWords3

by Joe DiCara

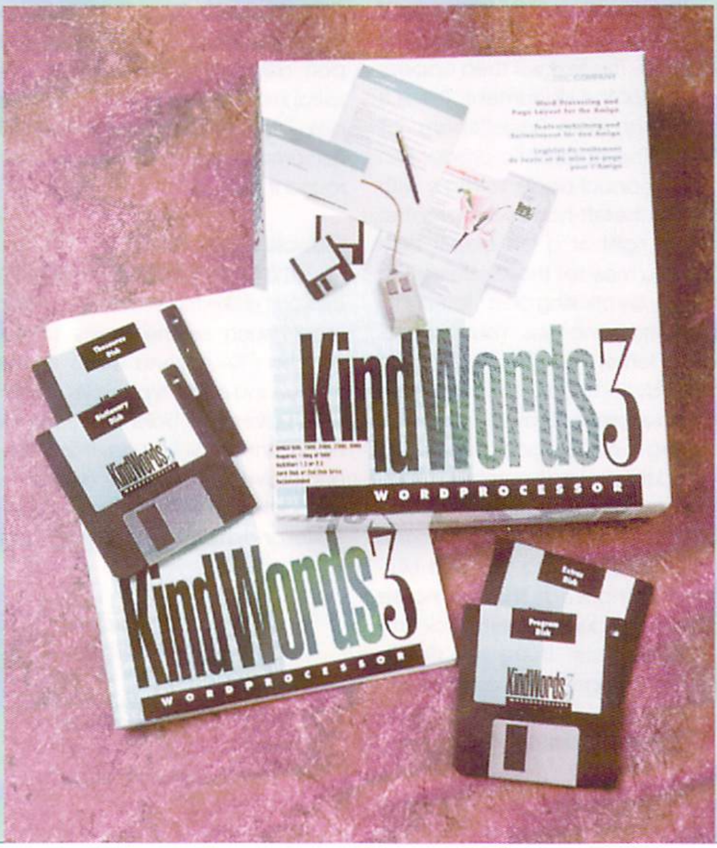
KindWords3 is a full-featured word processor targeted for the home user and small business, offering graphics handling and output quality normally found on more powerful DTP programs. Specifically designed for use with dot-matrix printers, KindWords3 utilizes special fonts and printer routines that enable it to generate documents of higher quality than would normally be possible with those peripherals. Almost a complete re-write from its predecessor *KindWords2*, this new program also features a special user interface called Human Interface Protocol(HIP). Designed by Digita, a British company, HIP logically puts all of KindWords3's controls and functions at your command. Through the combined use of its on-screen Toolbox, pull-down menus, and numerous point-and-click requesters, all functions are easily accessed and utilized. Other KindWords3 features include the on-line context-sensitive Help function, complete keyboard equivalents, the ability to use up to 255 Amiga fonts within one document, two screen resolutions, document rulers in either inches or metric measurements and, of course, graphic support.

Te Escribir Espanol?

Another boast KindWords3 can make that does set it apart from most word processor packages is its Collins-Proximity spelling checker and thesaurus. This easy-to-use 116,000-word spelling checker and 40,000-word thesaurus with reference to over 470,000 synonyms, is the industry standard for PC computer word processors. Because of its wide use and acceptance, there are spelling modules available in nine other languages. These foreign dictionaries should prove to be very helpful to language students, or in any situation involving bilingual correspondence. Each module is available directly from the Disc Company, and can easily be incorporated into KindWords3.

Graphics Too!

KindWords3's ultimate claim to fame is the combination of automatic integration of text and graphics, and its enhanced high-density printer control. Able to import any Amiga IFF graphic, even HAM images, KindWords3 remaps images into a 2-, 4-, 8-, or 16-color pallet. Complete control over image size and page position is possible, and multiple images per page can be used.



Using Kindwords3

KindWords3 can be run from floppies or a hard drive. Before the program can be used, it must be installed either on a special bootable floppy or to the hard drive. This process is not unusual or difficult, but the manual does make it seem terribly complicated. Once past the installation hurdle, using KindWords3 is straightforward, and it proves itself to be a capable word processor. All the necessary tools to generate and manipulate text are available and work very well. The HIP program interface, complete with its menus and special requesters, simplifies document set-up, and its design provides the new WorkBench 2.0 look and feel, even on systems using AmigaDOS 1.3. KindWords3 is fast enough, even on unaccelerated Amigas, to keep up with all but the fastest typist.

Pictures Equal a Thousand Words

Just being a capable word processor is not enough anymore. Today we want to say it with graphics too. I think it's a stretch for KindWords3 to try to bring page layout capability and high-quality output to its users. While KindWords3 makes importing, placement, and sizing of the graphic a simple process, control over how the text actually interacts with the graphic is very limited. Basically, there are only two modes of insertion—graphic blocked straight against the text to its left or right, or text conformed to the image outline to its left or right. Also, text cannot be wrapped completely around the graphic, and no control is provided for determining precisely how the text brackets the graphics.

The manual shows examples of completed pages, but does not describe how to duplicate them. Even though one graphic and two document samples are provided on disk, the provided 82-page manual makes only a brief reference to them.

Conclusions

As a word processor, KindWords3 gets the job done and could function quite admirably as the front-end workhorse for any high-end typesetting program, but there are other limitations that need mentioning. First, KindWords3 is very limited in its ability to import other text formats. Only its own format and that of KindWords2, ASCII, or IFF text appear to be supported. Also, documents can only be saved in KindWords3 format, or as ASCII, or IFF text. No other word processor formats seem to be directly supported.

KindWords3 allows only two documents to be opened. While not a severe limitation, I discovered that when printing, the program stopped all internal processing, so the other document could not be worked on anyway. KindWords3 does, however, behave well in a multitasking environment, putting only a slight load on the system.

Finally, I struggled with the enhanced printing options. Six special NLQ text-only fonts are supplied for printers that do not have internal fonts. The manual attempts to explain when and how to use them, but I never quite got the results I needed. There are also an additional four fonts supplied for use in KindWords3's special high-density print option. They do provide improved print quality, but at a great cost in print time. In Super mode, printing a simple 50-word letter, with graphics, took 30 minutes. Obviously printing anything over one page, at that print resolution on unaccelerated Amigas and dot matrix printers, is not practical.

I was generally disappointed with the output print quality, but this might be simply a problem with my equipment. I have an older Panasonic 9-pin printer, whose resolution might not be capable of really enhanced output. Also, no exact printer driver is available for my dinosaur. Perhaps if your printer is directly supported, your results will be different. KindWords3 claims compatibility with over 140 printers, but only four drivers are provided with the program. I assume the other printers are Amiga Preference drivers. So beware—check to see if your printer is directly supported, and that it has the resolution to pull the job off. Otherwise the whole point of this program could be missed.

KindWords3 will run on any Amiga having at least 1MB of memory. The program supports Workbench 1.3 and 2.0, as well as hard disk drives. Its support files are on four unprotected disks.

KindWords 3.0
The Disc Company
11440 San Vicente Blvd
Los Angeles, CA 90049
(310) 207-1600
Inquiry #201

MathVISION

by Rob Hays

MathVISION, from Seven Seas Software, has been around in one form or another almost as long as the Amiga itself. It began as an attempt by the author, Doug Houck, to understand a college programming problem. First released as Doug's *Math Aquarium* in 1986, the program has undergone many revisions and updates. Now up to MathVISION version 2.02, it features Workbench 2.0 compatibility, an ARexx port, and much more.

The Edit screen is the control panel for the program. Here are the gadgets into which you enter your values and formulas. Not every gadget is used for every problem, and the program has menu functions to "guess" at reasonable values for some variables. The line labeled val contains the expression that will be solved and plotted. The lines FA: through FI: are for defining custom functions. For instance, you can type into FA: X+2, into FB: X*3. Then in the val line type FA + FB. This has the same effect as typing (x+2) + (x*3) all into the val line. While this simple example shows no particular advantage to using the function lines, complex problems require their use, and they simplify rearranging groups of operations as you refine your problem.

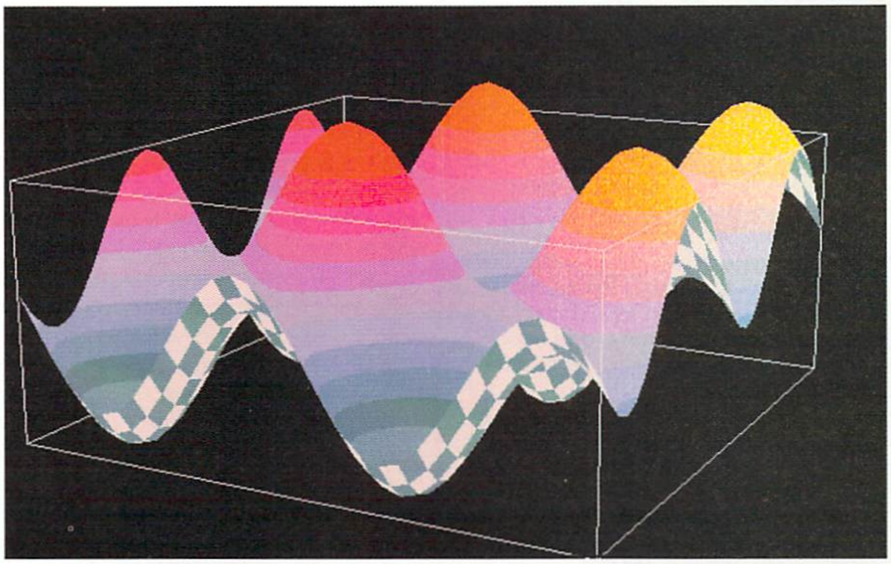
MathVISION includes built-in functions that you can use in your expressions. These range from addition and subtraction, to Boolean functions such as IF, OR, and NOT, to such esoteric realms as hyperbolic trigonometry. Lists and descriptions of these functions are available on-line at the touch of a hot key. Also included are specialized auxiliary programs called hooks. Most often these add math functions, but some control MathVISION itself by setting up special plotting or display modes. Hooks that have been loaded also appear in the functions list screen, and often add menu items in the Edit Screen.

Once you have defined your problem, you can plot it in a number of different ways, depending on the form of your function. If your function takes the form of Y = f(X), choose the Simple plot. This produces the classic geometry graph with Xmin on the left side of the screen, Xmax on the right, and the value of Y ranging from the bottom of the screen to the top. If your function is in the form of Z = f(X,Y) and you choose the Contour plot, the result is two dimensional with Z assigned a color based on its value. Perspective produces a 3-D effect by plotting the results in a tilted perspective box. If you don't like the orientation of this box, you can go to the Viewpoint screen, grab a corner of the box and drag it around until the orientation suits you.

A plot is usually not the final step if you are solving a problem. You will almost always need specific numerical values rather than a pretty curve. The Analyze tool is made for just this situation. This tool places a small box on your Plot screen which you drag around with the mouse. At the bottom of the screen various values are shown for every position of the box on the graph.

All of this calculation and plotting can take an appreciable amount of time, but not an unreasonable amount even on a stock A500. The Perspective plot (see figure) takes 2 minutes, 23 seconds on a 500, but only 25 seconds on a 3000 with a 25MHz 68030 and math coprocessor. Plots can be rendered in all screen resolutions and modes from lo-res to hi-res overscan, to HAM. To speed up first approximations you can reduce the size of the area plotted as well as the level of detail.

Two versions of MathVISION are supplied on three floppies, one each for Single Precision and Double Precision math, and a floppy of example pictures and formulas. MathVISION will make use of any external floppy drives you have, can be installed on a hard disk, and will utilize a math chip if



your system has one. However, it doesn't require any of these, running well on a 512K single floppy 500. It multitasks perfectly, even running multiple copies simultaneously, and there is no copy protection.

The only problem I ran into was with some of the ARexx examples. Two types are included, those intended to be run from the Workbench, and those intended to be run from the CLI or Shell. The first one worked fine, the other didn't. A call to the customer support number was answered by one of the programmers, who took down the information and called back with the solution. The scripts were failing every time ARexx reached a line repeated in them all, "NUMERIC DIGITS 15." It turns out that this line can be deleted, or the number changed to 14, and the examples will work properly.

Suggestions? The Edit screen could use a little work. When you're entering numbers into any of the Edit screen gadgets, the return key should drop the cursor to the next line in the section you're working in. In the present version, the cursor disappears when you hit return, forcing you to move the mouse to the next line, click the button, then begin typing. Hooks should be loaded through a requester, as are pictures and formulas. Currently you have to flip through the screens until you get back to the Workbench, find the drawer the hooks are in, then double click the icon for the hook you want.

MathVISION in all of its incarnations has been a bit of an enigma. It's not a paint program, although it produces stunning images, and you can draw freehand with it. It's not a music program, although it can produce interesting sounds. It's not a video special effects program, although you can use it to produce transitions and wipes between images. It's not an animation program, although you can make animated sequences with it. The 114-page spiral-bound manual does a good job of explaining how to use the various features, but devotes only five pages with two examples to converting regular math problems into a form MathVISION can work with. A few more examples of real world problem solving would help a lot. The authors tell you they aren't going to teach you math, and while you can make use of the program without knowing algebra or geometry, the more math you know, the more you will get out of this program.

MathVISION is an outstanding example of a type of software that has been too lacking for the Amiga. It has been said that one picture is worth a thousand words. In the area of mathematic and scientific visualizations, the word to remember is MathVISION.

MathVISION
Seven Seas Software
PO Box 1451, Port Townsend
WA 98368
(206) 385-1956
Inquiry #256

TruePrint/24

by Merrill Callaway

TruePrint/24 is an 8- and 24-bit Preferences printer utility for your Amiga. If you print any kind of graphics at all, or if you need to print oversized banners or posters, then you'll love TruePrint/24. There are two things in general that TruePrint/24 does. First, it allows you to print large posters up to 999 by 999 standard printer pages which, as the manual deadpans, "should be more than enough for your printing needs." Second, TruePrint/24 allows Amiga preference printers to output in 8-bit (256) gray scale or 24-bit (16.7 million) colors instead of at the Amiga standard preferences printer output of only 4-bit gray and 12-bit color. These numbers translate into a major shift upward in the printer output's color or gray scale fidelity. To me, they mean the difference between "frameable art" and a newspaper photo clipping. On my laser printer, with TruePrint/24, a color image (in gray scale) comes out looking like a handsome charcoal drawing with subtle shading and a richness that I've never seen before in a computer printout. Thanks to Impact Photo Images, a local Amiga-based advertising firm, I obtained samples of 24-bit image printing output from an HP Deskjet Super C color printer.

TruePrint/24 Works Through Preferences

TruePrint/24 only works in conjunction with Preferences printer drivers. The only system requirement for TruePrint/24 is that your preferences printer driver supports "strip printing." Unfortunately, this leaves out the new Commodore AmigaDOS 2.1 PostScript preferences driver, since PostScript is a "page description" language and not a strip printer. Other drivers that don't work are the CalComp ColorMaster and ColorMaster2; and Tektronix 4693D and 4696 drivers. I have tested TruePrint with my Epson EPL 7500 laser printer in HP Laserjet emulation using the HP_Laserjet Preferences driver; on an HP Deskjet printer using the HP_Deskjet driver; and on an HP Deskjet C color printer using the Super Deskjet C driver by Creative Focus, and it worked very well. With the 256 shades of gray, the Deskjet output looked almost as good as the laser output, except that the blacks from inkjets are never as saturated as the blacks from laser toner (on black and white Deskjets, Impact Photo Images recommends using the optional super-saturated black ink cartridge). The TruePrint/24 utility pushed each printer to the maximum limits of its quality, and the black and white results were stunning compared to "standard output." The Deskjet C color printer likewise output its very best under the influence of TruePrint/24, but since affordable color printers are not quite up to the quality of a good black and white laser printer, I didn't expect miracles. However, I did see an improvement in overall quality compared with "standard" output. Advertising firms use the HP Deskjet C color printer to make color drafts to show clients. TruePrint/24 was in heavy use at the firm I visited.

Installation, Manual, and Interface

The package comes with a disk, a manual, and a registration card. The standard installation program is simple to follow, and a 91-page, well written and indexed manual describes the operation and theory of TruePrint. The illustrations are sometimes hard to read due to not having been imageset at high enough resolution before printing, but generally the information comes across OK. The text is certainly an improvement over previous ASDG manuals. There is far more explanation and detail which I am sure users will welcome. Several tutorials are included for beginners and for those who want to learn every feature of TruePrint/24. The excellent manual complements the superb interface.

Those familiar with *Art Department Professional* will feel at home with the user interface. There is a screen with rulers along the top and side, and a grid representing printed pages (with sizes automatically taken from preferences settings). A window with gadgets for setting printed page size, resolution, image aspect, density, etc., appears next to the grid and may be iconified if need be. The overall image may be stretched with or without changing the image aspect to overlap several adjacent rectangles in the grid to produce large, tiled, poster prints, or the image rectangle may be sized to fill only one rectangle producing a single page printout. You merely click-drag on "handles" along the sides and corners of the image outline. It's all so intuitive, it's far easier to do than to describe.

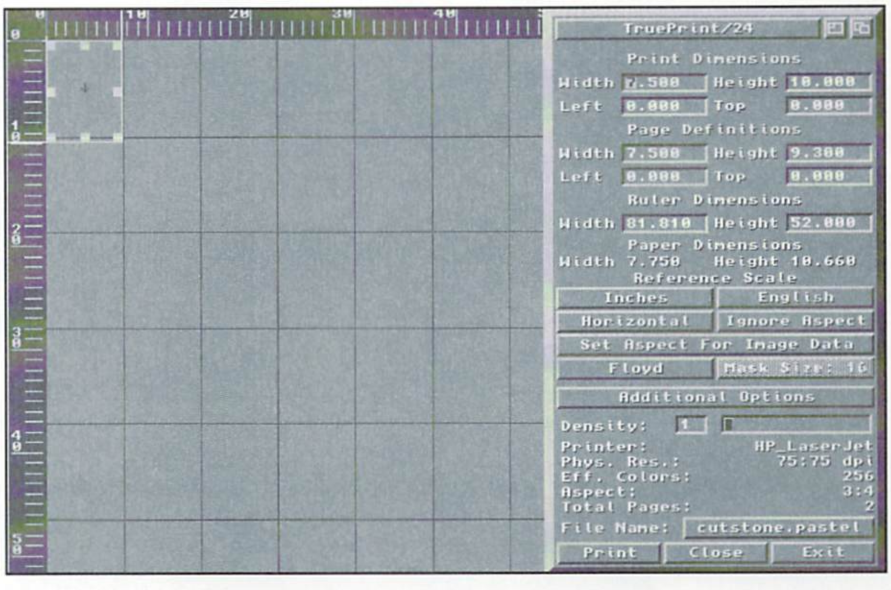
You will need the manual, however, once you decide to explore the more technical aspects of printing. For instance, the manual has a very useful illustration explaining the differences between the paper dimensions, the page dimensions, and the print dimensions. You will also want to read the sections on image aspects (Sections 2.5 and 3.1.5). You may change from landscape to portrait orientation with a button click (and the interface grid changes, too). As in ADPro, you may change the WYSIWYG (What You See Is What You Get) image outline by typing numbers into the size gadgets directly. Measures may be in metric or English and even the system's units may be set (e.g., inches or feet). An Additional Options button opens a window that allows you to set—but unfortunately not preview—brightness, gamma, contrast, red, green, blue, etc., much as in ADPro's Balance controls. The manual explains all these in detail, but because there is no print output preview simulation, you will have to experiment several times to get perfect balance with contrasty or tricky images. *Hint*: Use the balance controls sparingly. A little does a lot.

The main window also displays all information from preferences as to which driver is loaded, the dpi resolution, the effective colors, and the image aspect, as well as how many pages you're going to print at the size you've chosen. The Amiga ASL file requester comes up when you load an image to print. Once you start the print, a "bar chart" window opens on Workbench to show "percentage loaded" and "percentage printed" progress—a handy feature, as some prints take several minutes to finish. One word of caution regarding color images. They must be in 24-bit format before printing. While using the HP Deskjet C color printer, images that had been saved as, say, 16-color rendered data images, came up in TruePrint/24 as "256 effective colors" and printed in gray scale. A trip to ADPro to load these images and then save them as 24-bit color images corrected the problem. Since I was visiting a color printer in another shop, I am not sure where lies the source of this glitch. On the one hand, it doesn't make sense to use a 24-bit color print utility to print a 16-color image, but on the other hand, TruePrint ought to print a color image in color on a color printer, no matter what. After all, the graphics printer preference was set to "color." Images saved as 24-bit printed flawlessly in color.

System 2.0 Refinements

For those who have System 2.0, TruePrint/24 supports AppIcon and AppMenu features. If you hit the "close" button on the TruePrint/24 user screen, the program goes to sleep, leaving an AppIcon showing a picture of a printer on the Workbench. Double clicking on this icon opens the TruePrint/24 screen again. If you drag an image icon or file name over on to the AppIcon, then it prints that image using the settings in effect when you "closed" TruePrint. Also, if you click-drag with the right mouse button on the Workbench Tool menu while the program is "closed," then you will see a "Quit TruePrint24" tool listed there. Selecting it quits TruePrint/24.

If the TruePrint/24 screen is open, then switching to the Workbench screen shows a different AppIcon showing a picture only (no printer). Clicking on this moves the TruePrint screen to the front. The Workbench Tool menu reads "Activate TruePrint24," and dropping an image icon or name on the AppIcon loads the image ready to print. TruePrint/24 even gives you the chance to make your own AppIcons in case you don't like the default icons! You simply give your own icons certain names and the program uses them instead.



Print Dimensions: Width 7.500 Height 10.000 Left 0.000 Top 0.000
Page Definitions: Width 7.500 Height 9.300 Left 0.000 Top 0.000
Ruler Dimensions: Width 81.810 Height 52.000
Paper Dimensions: Width 7.750 Height 10.660
Density: 1
Printer: HP_LaserJet
Phys. Res.: 75:75 dpi
Eff. Colors: 256
Aspect: 3:4
Total Pages: 2
File Name: cutstone.pastel

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Dithering and Resolution

TruePrint/24 allows you to select several types of dithering: Floyd-Steinberg, Ordered, Horizontal, Vertical, Forward and Backward Brick and Diagonal, two kinds of Halftone, and even ASCII—like those early computer portraits of the Mona Lisa done with letters and numbers. You may also choose among four Mask Sizes to determine how fine or coarse the dithering is to be. The manual has illustrations for each type and mask size.

The CLI, ARexx, and Printing to a File

A full complement of Command Line options are included and may be used in an ARexx call although there is no ARexx port per se to allow replies to the calling ARexx program. By tweaking the CMD Utility in the Commodore System software, you may redirect the TruePrint/24 output to a file instead of the printer.

Conclusions

There are no two ways about TruePrint/24. It's robust and friendly. It's great if you're into printing graphics, and the reasonable price makes it even more attractive. I'm sorry it doesn't support the Commodore Preferences PostScript driver; and a little puzzled at why it won't print rendered image data in color (at least on the HP Deskjet Super C and driver mentioned above). Nevertheless, the results are just so cool that I don't mind changing over to LaserJet emulation or making files into 24-bit images. The results are stunning, and the capability for printing large poster size tiled output opens up all sorts of artistic possibilities.

TruePrint/24
ASDG
925 Stewart Street
Madison, WI 53713
(608) 273-6585
Inquiry #202

Back to Basics

by Kim B. Schaffer

Sometimes the simplest things are the hardest. Getting back to reading, writing, and 'rithmetic is a good example. Lascelles Productions has come up with a collection of programs to help you get back to basics.

Back to Basics includes six stand-alone programs: Say N' Spell, Long Addition, Long Subtraction, Long Multiplication, Long Division, and Tables Test. The programs are packaged on two floppy disks that will boot on Workbench Version 1.2. The package appears to be targeted for the 10- to 14-year-old. I have seen a sharp 6-year-old struggle to be satisfactory, a 9-year-old get high marks, and myself, a college graduate, struggling, with the program set to the highest setting, trying to spell "acquisition." It is definitely packaged for use in the classroom, but could also be used as a home learning aid.

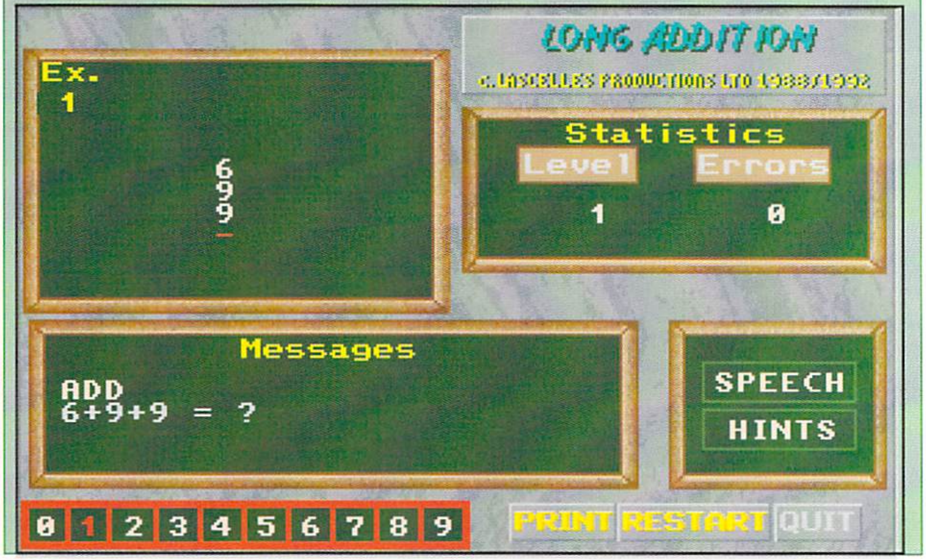
Of the six programs, only Say N' Spell does not deal with mathematics. Say N' Spell is exactly what it says. There are seven different levels. In each level are 10 sets of words. The manual states that it contains 700 of the most-used words in the English language. In addition to the separate levels there are seven groups of mixed levels, each with 10 sets. In these words are several names of places like Albuquerque or Saskatchewan to test spelling skills. Even though the package gives a New Zealand address, the spellings in the version that I received were American. However, there are no instructions for changing or substituting words. This is unfortunate for use in a classroom setting.

The five remaining programs all concentrate on different aspects of mathematics. In Long Addition, numbers range from one to four digits with three or four numbers to be added. With the SPEECH on, all you have to do is follow the instructions. With the HINTS on, the program breaks down the process into the simplest steps. Nevertheless, all work must be shown. The SPEECH and HINTS are turned on at the beginning of each session; after the beginning of the first exercise, the SPEECH or HINTS can be turned off. The student can use the help to get going, but will soon turn it off as his proficiency increases.

Long Subtraction, Long Multiplication, and Long Division work very similarly and are equivalent in difficulty to Long Addition. Each gives you 10 exercises from one of three levels. After you complete the exercises the program asks if you would like a printout. The program then gives three more exercises that can be printed out or copied down. Finally, you enter the answers and are rewarded with an encouraging word if you are right, or an "oops" if you are wrong. Afterwards, the programs cycle back, asking which of the three levels you would like to choose.

The method Back to Basics uses in subtraction to show borrowing was new to me. At first I thought it was a new way, but it seems to be common in most of the British Commonwealth and some parts of the United States. Figure 1 quickly compares the two methods which lead you to the same answer either way. So why discuss it? If your teachers were like mine, giving the answer is only part of the problem, demonstrating how to do it is the rest. If you are not using the same method that the instructor uses, it might be considered wrong. If that's the case, this program may not be much help.

Long Division has a problem with its methods for using estimation. For example, if the problem is dividing 65 by 17, there are two ways to approach it. One is to go by



```
6
9
9
```

Messages

```
ADD
6+9+9 = ?
```

Level 1, Errors 0

the largest digit, in this case 1, and calculate how many 1s go in 6. The answer, of course is 6. Another approach is to estimate 17 using 20, and calculate how many 20s in 65, or how many 2s in 6.

The second approach is usually closer to the correct answer; however, it uses the concept of estimation that is introduced at the higher level. Depending on the class, estimation may not be introduced until later. The first approach is really only discussed, not used; your answer had better be based on the second approach. The program will not take a "guesstimate"; you must give the right answer.

There is also a minor flaw that could be easily fixed in the Long Multiplication program. The verbal instruction always tells you to carry zero, even when a number is carried. I had to listen several times before I caught the error, and the answer still depends on carrying the correct amount.

The final program, Tables Test, should be erased from the disk. The program reminds me of a bad dream the night before a multiplication test. For starters, there are three levels, each with a hard or easy setting. The hard setting will ask multiplication questions up to 15 x 15. The easy setting goes to 12 x 12. Then the question is displayed and you are told to click on GO or press the space bar. Either action causes the counter to start running. If you have an accelerator board such as I do, the counter *really* starts running.

Since you can stare at the problem until you are ready, I'm not sure what the program is testing, but it seems to be how fast you can put in the answer. At the end of the 10 problems, you can choose YES or NO for another set of 10 problems. When you choose NO, the program ends. You will get ERR points for every digit you get wrong. If the answer is 12 and you enter 2 then 2, you get two ERRs. If you have enough time, you can keep racking up the points until you get the right digits in the right order. If you have the SPEECH turned off, your only indication of an incorrect answer is the ERR column. You will not know the correct answer without the SPEECH turned on.

Overall, the help is extensive throughout all of the programs. When turned on, it will lead the user through the exercises. It is not necessary to understand what is going on as long as you can do simple addition, subtraction, multiplication, and division, and follow the verbal instructions. As the student becomes comfortable with the processes, the SPEECH and HINTS can be turned off, giving the student more control. Typically, the student is given immediate feedback, whether he is right or wrong.

For all the help provided to the student, the documentation is somewhat of a surprise. The manual is printed in a light blue ink, fairly difficult to read, and probably more difficult to copy. Every time I referred to the manual I was disappointed. It contains nothing that a student couldn't figure out on his own. There are no instructions on changing the vocabulary words, exercise problems, or evaluation criteria. For classroom use a program should be simple enough to be used with little instruction, and these programs are. Unfortunately, the extras to help the teacher or parent that should be in the manual are not there.

Overall, the package is well adapted for self-study and exercise. The package does not grade, or track the progress of the individuals beyond each exercise. Unfortunately, this package will not blend in with the syllabus of most classrooms. However, the program is robust and usually supportive, and it provides good study material.

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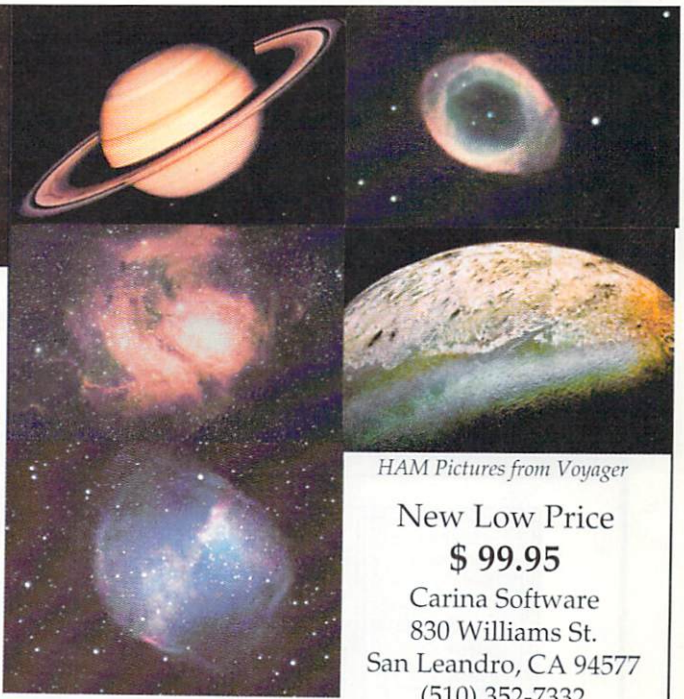

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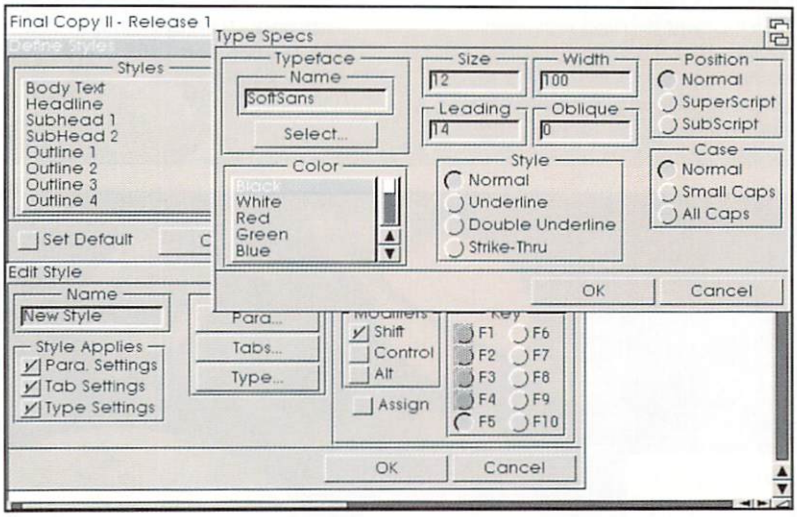
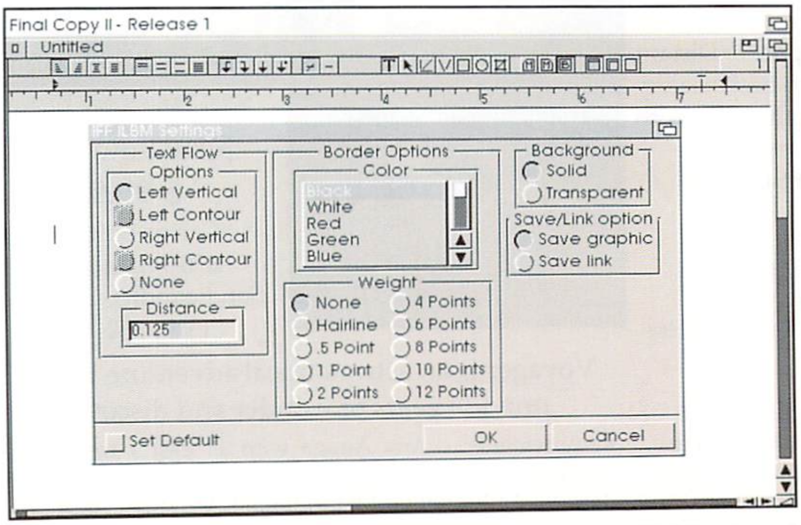
Creating a Storyboard...

by R. Shamms Mortier

FOR AN ANIMATOR, making a storyboard is like making a map that saves one from getting lost in the wilderness. The main rule in creating an animation is "plan ahead," or more precisely, "plan ahead very carefully." The storyboard lays out the entire game plan: the timing of segments, where certain keyframes are to be placed, the scripting of voiceovers and music, and the placement of special effects like fades, wipes, and blends. It is necessary to provide spaces for each of these parameters when thinking of storyboard design. The storyboard often reads like a comic book when finished.



Name: SoftSans
Size: 12
Width: 100
Leading: 14
Oblique: 0
Position: ● Normal
Case: ● Normal
Style: ● Normal
Name: New Style
Style Applies: ☑ Para. Settings ☑ Tab Settings ☑ Type Settings
Modifiers: ☑ Shift
Key: ● F5



Text Flow Options: ● Left Vertical
Distance: 0.125
Weight: ● None
Background: ● Solid
Save/Link option: ● Save graphic

The Amiga has excellent desktop publishing software that can be used to create storyboards, but in a way, some are too good. There are so many features in some Amiga desktop publishing programs that their presence can complicate the task at hand. On the other hand, many wordprocessing software packages are too simple, and do not offer enough of the tools needed to do the job. Just which tools are necessary?

1. The ability to make vertical columns, which allows for the placement of side-by-side progressive frame information

2. The capacity to insert text within columns to give verbal direction and explanation to the production

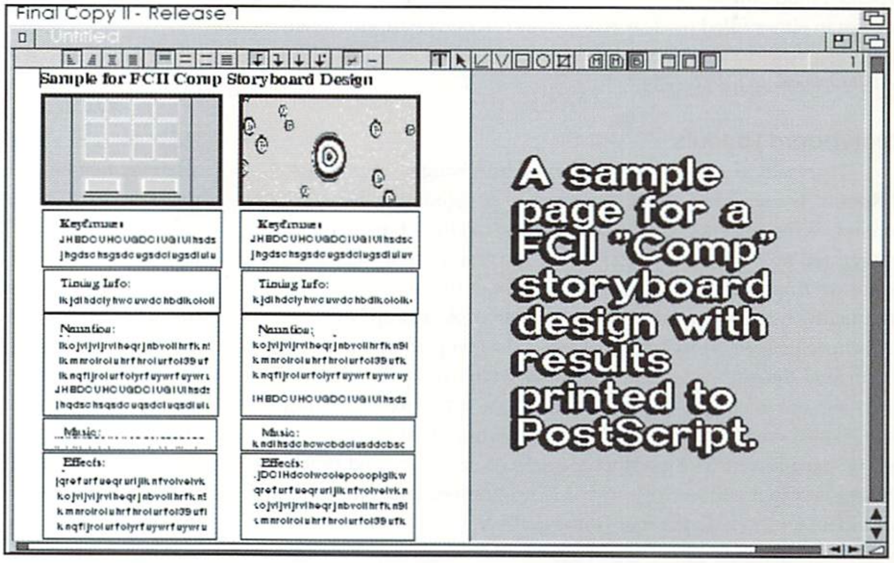
3. Addressing the highest output possible, preferably PostScript, so that the results are clear and understandable

4. Importation of resizable graphics from disk storage to show the keyframe visuals

Very often, the storyboard is used to actually sell an idea to a producer or client, so it must be designed as artistically as the animation itself. There are designers whose main work is to engage in storyboard design, but most of the time, the animator must provide the storyboard as well as the finished product. This is especially true when the production house is a small operation, as are many Amiga-based businesses.

Enter FinalCopy II

Like many Amiga artists and animators, I entered the game a good while ago. At that time, there were very few programs of any kind, much less adequate wordprocessors. But times have indeed



Final Copy II - Release 1

Untitled

Sample for FCII Comp Storyboard Design

Keyframe:

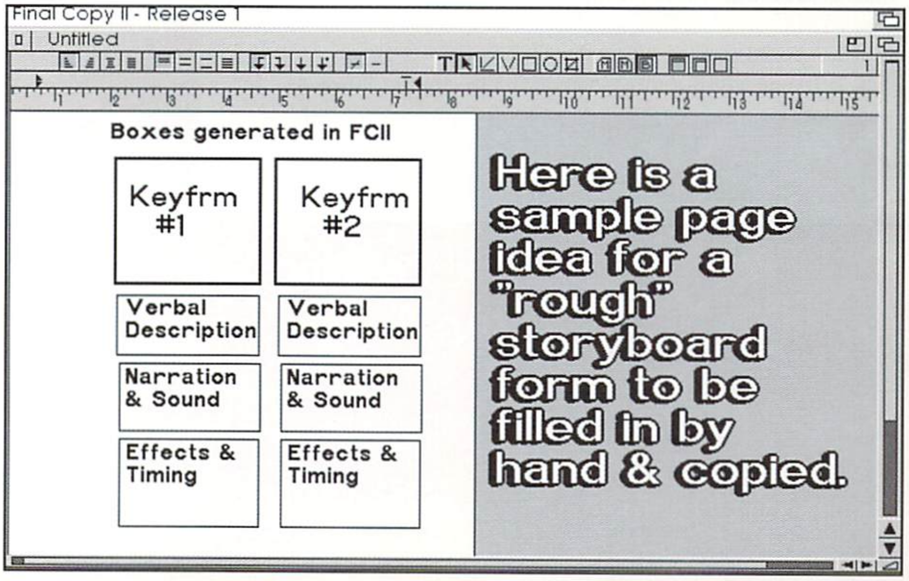
Timing Info:

Narration:

Music:

Effects:

A sample page for a FCII "Comp" storyboard design with results printed to PostScript.



Final Copy II - Release 1

Untitled

Boxes generated in FCII

Keyfrm #1	Keyfrm #2
Verbal Description	Verbal Description
Narration & Sound	Narration & Sound
Effects & Timing	Effects & Timing

Here is a sample page idea for a "rough" storyboard form to be filled in by hand & copied.

changed. The marketplace now calls our attention to more than a handful of very professional products. *FinalCopy II* from SoftWood is very good in terms of features, ease of use, documentation, and suitability for storyboarding. Besides being my favorite all-around wordprocessor for the Amiga, it possesses all of the needed tools for creating very professional storyboards—and then some.

Columns may be generated by simply indicating a number from one to six in the "Page Setup" requester, and their separating distance may also be set. For my storyboards, I use two columns across a standard 8 1/2 x 11 page, with a default separator of 0.25 or 1/4 inch. FinalCopy II allows for the generation and saving of "Style Sheets"—preformatted tags that can be applied to any selected text blocks. You can either use the predefined library on-board (experiment and take a look at their uses), or you can define your own setups. I prefer the latter in this case. Up to 16 styles are allowed. This includes all paragraph, tab, and type parameters, so you imagine the versatility of these tools.

The third necessity I have listed above for generating storyboards is to be able to address PostScript output. PostScript ensures that the printed copy will be as sharp as possible, and that the text will be clean and sharp. Not only can FinalCopy II direct its output to a PostScript device; it almost seems as if FinalCopy II was designed as a PostScript module.

FC II has a long list of PostScript tools and accessories. Number one, FC II addresses all of the native PostScript fonts normally contained in PostScript printing devices to ensure the sharpest text output. It also allows you to download a library of "SoftFonts" to any printer for even wider text styles. When printing, just select the "PostScript Printer"—printing to a PostScript file is also allowed—gadget beforehand. There is also a separate PostScript menu where you can choose between gray/color, serial/parallel, and portrait/landscape modes. FC II's PostScript printing is faster than what I've seen on other wordprocessors, and in some cases, faster than Amiga desktop publishing programs.

The fourth item I listed as a necessity in creating storyboards involves importing graphics. This is vital, since producers and clients need to see the keyframes in question in the scripting of a piece. FC II's ability to import IFF graphics—including HAMs and 24-bit as well as brushes—is excellent. FC II has a graphics menu dedicated to this option. Text may be set to flow around the graphics. A border may be drawn around the imported picture. For

...with Final Copy

storyboarding, I use a rather thick six-point border. Once imported, a graphic may be moved, resized, cropped, or deleted. FC II also sports a modicum of its own graphic tools: lines, boxes, and ovals/circles in either filled or clear types. This can be very useful when adding arrows or other addendum graphics. Now let's look at some specific storyboard layouts.

Storyboard Layouts

I typically use two types of storyboards: roughs and comps. A "Rough" is a storyboard that is created to be filled in by hand. There are boxes for graphics, and areas that I use to either type or write in suggested text. For most clients this is a necessary first step, and it can save time later. For some clients, the ones that trust you implicitly, this may be the only step required. A "Comp" or "Comprehensive" storyboard has all of the text printed in finished form, and the graphics are imprinted as well. Even when the graphics are in an example-only state on a comp storyboard, they are usually created in a paint program and imported into the storyboard layout. The graphics may also be very finished representations, created and saved from a 3-D program or taken from frames of videotape via a digitizer or frame grabber. Graphics may also be digitized examples of real world objects. For rough storyboards, all that is needed is a standard form that can be run off on a copier to be filled in as needed. The following areas must be indicated:

1. A boxed area for the graphic
2. Timing information—where the frame appears, how long things last, etc.
3. Soundtrack data: Narration and/or music
4. Voiceover script (in whole or suggestive part)
5. Verbalization of what is graphically occuring (effects, etc.)

I have included an example of a rough storyboard. This was produced for copying within the FC II software.

A comp storyboard has all of the data printed out in place. Here is where a PostScript option comes in very handy, and where all of the finesse you can muster is targeted. Larger accounts and more industry-recognized producers expect comp storyboards. Notice that the data headlines are bolder as compared to the body text. See Figure 4 for an example of a finished comp storyboard.

Storyboarding is a vital part of the animation process. It helps the animator get a grasp on what is necessary in terms of time, energy, and tools to complete a work. It helps a client or producer see the suggested results in a way that helps to budget funds and energy, and is vital in the preparation of a suggested timeline. When changes are needed, they can be suggested much more efficiently when visual examples are available from the storyboard. Storyboarding takes just as much creative preparation as all other aspects of the creative animation process.

•AC•

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Image Compression

with Iterated Function Systems

by John Iovine

We typically store art work or digitized images as files on a disk. These files represent the bit codes of the screen image. The number of bits required to store an image depends upon the screen resolution and the number of bit- planes used for color. Where each bit represents a pixel on the screen and each bitplane represents an additional screen used for color rendering of each pixel. The greater the resolution and/or colors, the higher the bit count for the image. To store a high resolution, 640 x 400 image with two colors on the Amiga computer requires 32,000 bytes. If we increase to 16 colors (4 bitplanes) the image now requires 128,000 bytes of information. Since one byte equals eight bits, our image would equal a little over one million bits of information.

Well 128,000 bytes is a pretty large file. Knowing this, computer programmers and designers have looked for ways to reduce the amount of bytes needed to accurately store images without degrading the image quality. This usually involves implementing a sub-program (algorithm) that encodes the data in special ways to reduce the number of bytes needed for image storage. This encoding process, called compression, results in saving the image using fewer bytes. Basic algorithms will yield compression ratios of 2:1 to 10:1. Back-end software recovers the full picture from the encoded file without any degradation in image quality.

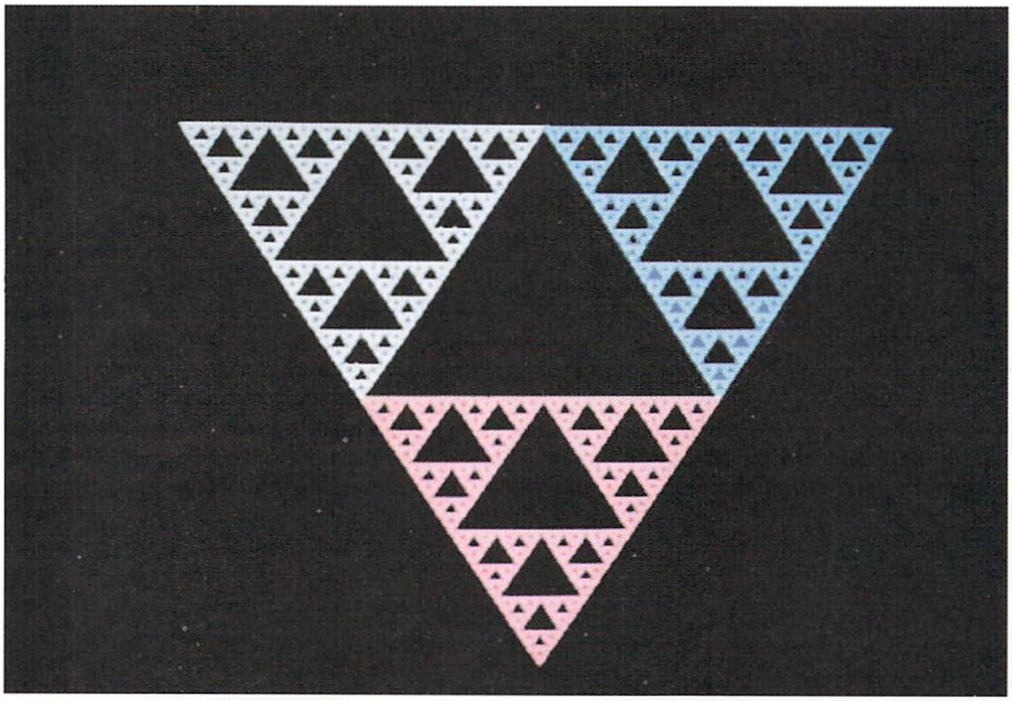
You are probably familiar with the compression schemes used for downloaded programs on most BBS systems, like ".arc" files.

The I.F.S. (Iterated Function System) is an image compression scheme that relies of fractal image compression and restoration. Using the basic system outline in this article, you can compress a 32,000-byte image to a mere 30 bytes of information. That's about a 1000:1 image compression. Not bad for a program that runs entirely in AmigaBASIC. Although 1000:1 image compression may seem like a lot, compression ratios of 10,000:1 and greater have been achieved.

System Creation

Development and credit for the IFS system belongs to Michael Barnsley and Alan Sloan, two former Georgia Institute of Tech mathematicians. Michael Barnsley developed algorithms several years ago that plotted near photo-realistic ferns and other images based on fractals.

In 1987 Barnsley and Sloan formed a company Iterated Systems. This startup company is to uncover and fill commercial applications of the IFS. Iterated Function Systems is designing hardware that will automatically encode images into the IFS format. As you will find out later, encoding images is a little tedious.



Images

Images are stored as a series of data statements. To get an idea of what the system can do, run the small basic program "sampler.ifs". As the program runs, a series of what at first appears to be random dots start filling the screen. After a minute or two the dots form a recognizable image, that of a fern. When the program is finished, list it. At the end of the program is a series of data statements. The first data statement contains a single number. This number represents the number of IFS codes (affine transformations) that follow; in this case the number is four. Each following data statement represents one IFS code for the fern leaf. Virtually any IFS code could be exchanged with these data statements and run to reconstruct its image.

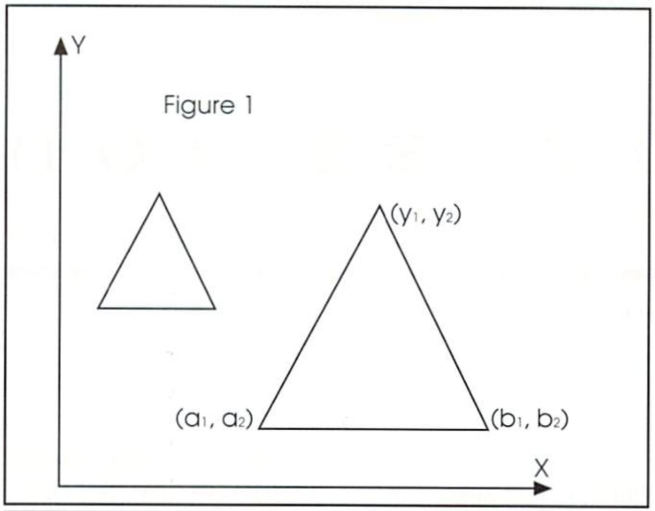


Figure 1

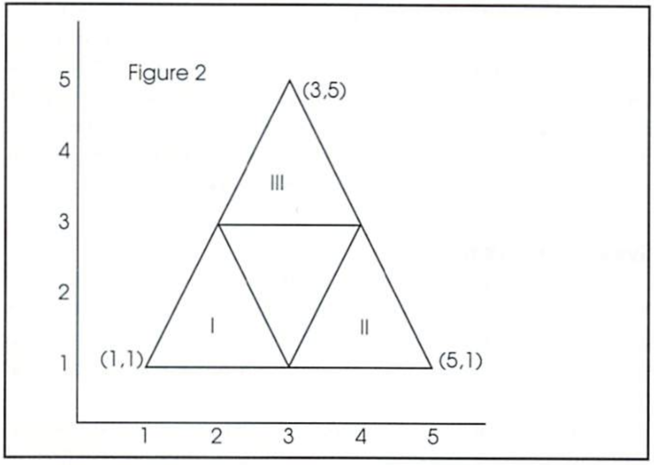


Figure 2

The Sampler .IFS program automatically scales the screen to the proper size required by the transformation. So you should be able to plug in any IFS code you may run across in magazines or books and it should work properly. Some transformations that I have come across are listed at the end of the text.

Affine Transformations

Affine transformations describe rotations, scaling, and translations of points on a two-dimensional space. This explanation becomes easier to understand by looking at Figure 1. The large triangle is our original triangle. When an affine transformation is applied to the coordinates of the triangle, it moves those points to a new location, represented by the smaller triangle. In this process, the affine transformation could scale (size), rotate, translate (move), and stretch the original figure. In Figure 1 the affine transformation has contracted (made smaller) and moved (translated) the triangle to the left.

The symbols a, b, c, d, e, & f represent a set of numbers that determine the character of the affine transformation. To find the affine transformation that will produce this effect, first label the points on the original triangle and determine their coordinates (a1,a2), (b1,b2) and (y1,y2). Then mark the corresponding points on the smaller triangle and label their coordinates (a1',a2'), (b1',b2') and (y1',y2').

To determine the values for the coefficients a, b and e, solve the following three simultaneous linear equations, You won't really have to do this math, a short program is included that does this for you.

```
a1a + a2b + e = a1'
b1a + b2b + e = b1'
y1a + y2b + e = y1'
```

To find the coefficients c, d, and f, solve the following three equations.

```
a1c + a2d + f = a2'
b1c + b2d + f = b2'
y1c + y2d + f = y2'
```

The answers derived for a, b, c, d, e, and f from these equations is one affine transformation. An IFS code is a collection of these affine transformations. However, we need just one more piece to complete its structure. Each transformation must also be assigned an associate probability, p. This probability factor determines its relative importance in relation to the other transformations. It is calculated by the area enclosed by each transformation. All probability factors regardless of the number of transformations are <= 1. Looking back at "sampler.ifs" program, total the seventh datum (the p factor) in each data statement that you find is less than or equal to one. In general terms we could write :

```
p1 + p2 + p3 + p4 .... + pn <= 1
```

Calculating Affine Transformations

To solidify all this information, let's calculate a few affine transformations together. We shall use the solver.ifs basic program to solve the simultaneous equations. All you need to do is plug in the triangle coordinates into the data statements.

Look at Figure 2. Here we have a large triangle constructed of three smaller similar triangles, labeled I, II and III. The large triangle is our origin triangle, the three smaller triangles correspond to three affine transformations of our large origin triangle. Starting at the bottom left point and going counter-clockwise, the coordinates of the origin triangle are (1,1), (5,1) and (3,5). Below is a table with the coordinates of all the triangles.

Origin	I	II	III
1,1	1,1	3,1	3,2
5,1	3,1	5,1	4,3
3,5	2,3	4,3	3,5

Load and list the AmigaBASIC program solver.ifs. The six Data statements at the beginning of the program contain the coordinates that we wish to solve. The first, third, and fifth data statement should hold the x,y coordinates of the origin triangle. The second, fourth, and sixth data statement hold the x,y coordinates of the triangle we wish to solve. Therefore, our data statement should look as follows:

```
Rem Original Coords X,Y ** New Coords X',Y'
Data 1,1    :rem x1,y1  origin
Data 1,1    :rem x1',y1'
Data 5,1    :rem x2,y2  origin
Data 3,1    :rem x2'y2'
Data 3,5    :rem x3,y3  origin
Data 2,3    :rem x3',y3'
```

When you run the program it will calculate the affine transformation for a, b, c, d, e, & f. With the coordinates given above, your values should be as follows:

```
 A      B       C        D       E       F
.5      0       0       .5      .5      .5
```

These numbers are the affine transformation for triangle number I, minus the probability factor which we will get to a little later.

Note: Sometimes when you run a transformation you will end up with a number like -7.27 E-11. If we write this in standard notation, it would look like -.0000000000727. This number is so close to 0, that we can round it off to zero. As a general rule of thumb, round off any number (positive or negative) to zero that has four or more leading zeros behind a decimal point.

Alright, now that we have the transformation for triangle I, let's proceed to triangle II. Input the coordinates for triangle II into the data statements. The original triangle coordinates remain in the data statements. Your data statement should look as follows:

```
Rem Original Coords X,Y ** New Coords X',Y'
Data 1,1     :rem x1,y1  origin
Data 3,1     :rem x1',y1'
Data 5,1     :rem x2,y2  origin
Data 5,1     :rem x2'y2'
Data 3,5     :rem x3,y3  origin
Data 4,3     :rem x3',y3'
```

Run the program again, the affine transformation for triangle II should read:

```
  A      B      C      D      E      F
 .5      0      0     .5     2.5    .5
```

Enter the coordinates for triangle III and run; the affine transformation for triangle III should read:

```
 .5   0    0    .5   1.5  2.5
```

If we analyze the numbers in the affine transformation, it tells us a little about what is happening. A and D are the scale factors for the x and y directions. In the above example these numbers are .5 which means it one-half the size of the original. B and C described the amount of rotation, in this case 0. E and F detail the amount that the new points are shifted or translated in the x and y directions from the original.

Probability

Probability as stated earlier is a function of area. Look back at Figure 2. From it we can see that our three transformation triangles are all equal in size. Because of this we can assign them equal probabilities of 0.33. Putting all this information together in a table we have:

Triangle	Coefficients						
	A	B	C	D	E	F	P
I	.5	0	0	.5	.5	.5	.33
II	.5	0	0	.5	2.5	.5	.33
III	.5	0	0	.5	1.5	2.5	.33

OK, now let's put these numbers in our "sampler.ifs" program and see how it works. Change the data statements in the "sampler.ifs" program to:

```
 Data   3
Data  .5,0,0,.5,.5,.5,.33
Data  .5,0,0,.5,2.5,.5,.33
Data  .5,0,0,.5,1.5,2.5,.33
```

Run the program. The image generated is called a Sierpinski triangle.

Random Iteration Algorithm

Right now, if you've been following along and doing the examples as they are given (ahem, not just reading through the material), you are bound to wonder how these numbers are generating these pictures. Well to get a handle on this, we are going to have to step back and punt. To do so, let us examine a program called the "Chaos_Game" which will do well to describe the image generation we are viewing. Incidently, the Chaos_game was derived by Michael Barnsley, the same gentleman responsible for the IFS.

To play the Chaos game manually, we need a sheet of paper, one die, and a pencil. First draw three points on the sheet of paper, corresponding to three corner points of a triangle. Label each corner point with two numbers of the die. So for our first corner we use 1,2, second corner 3,4 and third corner 5,6. Now we can start to play, choose any point randomly, anywhere on the paper to start from and throw the die. Whatever face turns up, you draw a point between the point you are currently at and the corner of the triangle identified by the number on the die face. So if you threw a four you'd use the (3,4) corner and draw a point midway between the point you're at and the (3,4) corner. Now this point you've just drawn becomes the current point, and you throw the die again. Whatever face turns up, you draw a point between the point you are currently at and the corner of the triangle identified by the number on the die face. Now this new point you have just drawn becomes the current point and you roll the die again. Proceeding in this manner, after a few thousand throws an image would be generated; it is our old friend the Sierpinski triangle.

Fortunately, you don't have to sit around throwing a die all night, run the chaos_game program and you'll have your plot in a minute or so. If you list the program you'll notice I used just one number per corner instead of two. This is equal to a three-sided die. Since the computer is generating the random number (1- 3), it wasn't necessary to use six numbers as would be required when throwing a standard die.

The application of the Chaos game to the IFS system is direct. In the Chaos game each number thrown generates a new point positioned between the last point and the corner of the triangle identified by the number on the rolled die face, the number on the die being a random number determined by the throw.

With the IFS, each random number chooses an affine transformation that is made to act upon the current plotted point, which in turn generates a new point that's plotted. This new point then becomes the current plotted point and another affine transformation is chosen at random. This continues in the manner described for as many iterations as wanted or required to regenerate the entire image.

In both programs the new coordinate becomes the current coordinate to generate a new coordinate.

Collages

When we examine generating affine transformations we made a collage of our original triangle. By laying the smaller triangles I, II and III into the original triangle, we were able to approximate the original triangle with the union of the three smaller triangles.

This procedure is symbolic of the methodology needed to generate IFS codes. The idea is to find a set of affine transformations that will cause the original image to be recreated by the union of the transformations.

To see this more clearly, find the affine transformation for the center triangle in Fig 2. Let's call this triangle 4. Since this triangle is rotated 180 degrees (pointed down) with respect to the original triangle, start reading the coordinates from the upper right corner and proceed counter-clockwise. Input the coordinates into the solver.ifs program. Take these coefficients and add to the existing data statements in the sampler.ifs. Change the first data statement to 4 since you now are using four affine transformations. Change the probabilities to .25 for all transformations and run.

Now instead of getting a Sierpinski triangle, you have a solid blocked triangle. Well, not really; there is a lot hidden here because we are plotting these triangles with just one color. After reading the color section that follows, re-plot these triangles (using 3 transformations and 4 transformations) with color; I'm sure you'll find the results interesting.

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As stated before the probabilities represent the area of that particular transformation in respect to the original image. This is easily calculated like so:

$$\frac{\text{Area of Transformation}}{\text{Area of Image}}$$

It is interesting to note that different probabilities do not really lead to different images. They just change the rate at which the various regions are plotted. This can be adjusted manually to make certain areas darker or more pronounced by using a higher probability, or lighter by using a lower probability.

Another interesting property of images created with the IFS is self-similarity. This means that a magnified portion of the image resembles the whole. We typically call these types of images fractals. The IFS is not limited to generating images that are only self similar, such as the Barnsley Fern, ascurrent research has proceeded past this point.

In Color

We can assign different colors to each transformation. This allows us to see the impact each transformation has on the overall image. Secondly it allows us to color the image to give the best image possible.

To start this section, let's go back to the Chaos_game program. List the program and change the following line,

```
 PSET (x1,y1),1
TO:
 PSET (x1,y1),r
```

Now run the program. What you may have expected was to see the triangle being formed with random multiple colors throughout. But this isn't what happens. The same is true for the IFS codes. The colors are painted predominately in the area attributed to that particular transformation.

Load and list the sampler.ifs program. Change the following line,

```
PSET (g,h),1        TO:         PSET (g,h),I
```

Now run the program. Notice that each transformation is colored separately. We can use this color separation to color individual sections of the image to our liking.

When attributing colors to each transformation, vary the hues slightly. For instance with the Tree.ifs there are a few transformations that are colored green. If I used the same hue green, the picture would appear flat and uninteresting. But by varying the hues of the green for each transformation you achieve a nice shading rendering that suggests a three-dimension picture.

Applications

In this article we deal with simple graphics. The IFS has been used to convert full colors pictures. Naturally the required storage space for these images is much less than the original digitized image. The IFS will become useful in any application where images are transmitted from one point to another, or for storage. Fully automated systems would be useful on satellites and space probes, where the IFS code could be transmitted more quickly with fewer errors.

In addition IFS codes could be combined to generate new and realistic images. You may take the IFS code for a forest, combine it with the IFS code of a sea scape or beach, and have a picture of a forest that ends at the sea. To finalize the print, you may enter the IFS code of someone you know and place them in the landscape.

The one question you may have is the time required for a picture to reconstruct. Remember we are working with AmigaBASIC. This same program if written in ML would be much faster; add a math co-processor and it becomes faster still. The new Amigas operate at 25 MHz which is about four times faster than my machine. Putting all this together, you could get an image reconstruct in a few seconds.

Programming Challenge

At the end of this article are a few IFS codes for you to try. But more important than just throwing in different codes is for you to create your own codes.

```
Tree.IFS                          Leaf.IFS
9                                  2
1,.06,-.07,.51,1.07,.11          .44,.32,-.07,.61,03,.7,.5
.12,0,.04,.19,.52,.88,.11         -.82,.16,-.16,.81,1.37,.14,.5
.1,.02,.02,.1,.55,.95,.11
.45,.02,.02,.45,.37,.35,.11
-.32,.43,.42,.41,.28,.18,.11
.21,-.27,.27,.21,.83,.47,.11
.35,.06,-.06,.35,.2,.09,.11
.27,-.28,.28,.27,.81,-.05,.11
.13,-.19,.19,.13,.96,.34,.11

Tree2.IFS
4
.195,-.488,.344,.443,.722,.536,.25
.462,.414,.252,.361,.538,1.167,.25
-.058,-.07,.453,-.111,1.125,.185,.25
-.045,.091,.469,-.022,.863,.871,.25
```

chaos.game

```
 SCREEN 1,320,400,3,3
 WINDOW 1,"Chaos_Game",,0,1
   x = 100 : y = 50
PALETTE 0,0,0,0:PALETTE 1,.33,.87,0:PALETTE
2,1,.6,.67:PALETTE 3,1,1,.13
  start:
  r = INT (RND(1) * 3 + 1)
  IF r = 1 THEN x1 = x/2: y1 = y/2
  IF r = 2 THEN x1 = (320-x)/2 +x:y1 = y/2
  IF r = 3 THEN IF x<160 THEN x1 = (159-x)/2 +x:y1 =
```

➛

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Circle 189 on Reader Service card.

```
(389-y)/2 +y
 IF r = 3 THEN IF x>160 THEN x1 = (x-159)/2 + 160:y1
= (389-y)/2 + y
 PSET (x1,y1),1
x = x1: y = y1
 GOTO start
```

sampler.ifs

```
SCREEN 1,640,400,4,4
WINDOW 1,"Sampler.IFS",,0,1
PALETTE 0,0,0,0 :PALETTE 1,.2,.9,0:PALETTE
2,.4,.6,1:PALETTE 3,.93,.2,0
PALETTE 4,1,1,.13:PALETTE 5,1,1,1:PALETTE
6,.8,.6,.53:PALETTE 7,1,.73,0
PALETTE 8,.8,.6,.53:PALETTE 9,0,.93,.87:PALETTE
10,1,.13,.93:PALETTE 11,.73,.73,.73
PRINT "Initalizing screen parameters"
GOSUB loaddata
flg = 0
FOR n = 1 TO 120000&
pk = RND (1)
FOR I = 1 TO NT
IF pk <= p(I) THEN k = I:GOTO graph
 NEXT I
graph:
nx = a(k) * x + b(k) * y + e(k)
ny = c(k) * x + d(k) * y + f(k)
x = nx: y = ny
IF flg = 1 THEN graphit
IF n > 350 THEN flg = 1 : GOTO ScaleSrn
IF x < xl THEN xl = x
IF x > xr THEN xr = x
IF y < yb THEN yb = y
IF y > yt THEN yt = y
GOTO increment

ScaleSrn:            REM Screen Scale Routine
  FOR k = 1 TO 1000
   sx1 = ABS(k * xl)
   sx2 = k*xr
     sx = sx1 + sx2
   IF sx < 640 THEN NEXT k
xof = INT(sx1) : xsc = INT(k * .85)
  FOR k = 1 TO 1000
   sy1 = ABS(k * yb)
   sy2 = k * yt
     sy = sy1 + sy2
   IF sy < 400 THEN NEXT k
yof = INT(sy1): ysc = INT(k * .85)
 CLS
graphit:
g = x * xsc + xof: h = y * ysc + yof
PSET (g,375-h),1
increment:
NEXT n
END
 loaddata:
DATA 4               : REM number of transformations
DATA 0,0,0,.16,0,0,.02
DATA .2 ,-.26,.23,.22,0,1.6,.06
DATA -.15,.28,.26,.24,0,.44,.07
DATA .85,.04,-.04,.85,0,1.6,.85
READ NT: pt = 0
FOR j = 1 TO NT
READ a(j),b(j),c(j),d(j),e(j),f(j),pk
pt = pt + pk
p(j) = pt
NEXT j
RETURN
```

solver.ifs

```
Calculate IFS codes for Collage Images
         John Iovine 5-6-90
    Use Cramer's Rule for Solving
        Simultaneous Equations

 Original Coords X,Y ** New Coords X',Y'
DATA  1,1             :REM  X1,  Y1
DATA  1,1             :REM  X1', Y1'
DATA  5,1             :REM  X2,  Y2
DATA  3,1             :REM  X2', Y2'
DATA  3,5             :REM  X3 , Y3
DATA  2,3             :REM  X3', Y3'

DIM z(3), a(3,3), c1(3), b(3,3), z1(3)
GOSUB Inroutine
GOSUB Solve
a=c1(1):b=c1(2):e=c1(3)
FOR i= 1 TO 3:z(i)=z1(i):NEXT
GOSUB Solve
c=c1(1):d=c1(2):f=c1(3)
CLS:PRINT "Solution—IFS code Transformation":PRINT
 PRINT "A, B & C = ";a,b,c
PRINT :PRINT"D, E & F = ";d,e,f
END

Inroutine:
REM Input Routine
n1=3:n2=n1
FOR i = 1 TO n1
FOR j = 1 TO 2:READ a(i,j):NEXT j:a(i,3)=1
READ z(i), z1(i)
NEXT i
RETURN

Solve:
FOR i = 1 TO n2:FOR j = 1 TO n2
b(i,j) = a(i,j)
NEXT j:NEXT i
GOSUB Determinant
d3  =  s6
IF d3 = 0 THEN PRINT"matrix error":END
FOR j = 1 n2:FOR i = 1 TO n2
b(i,j) = z(i)
IF j >1 THEN b(i,j-1) = a(i,j-1)
NEXT i
GOSUB Determinant
c1 (j) = s6/d3
NEXT j
RETURN
Determinant:
s6 = b(1,1)*(b(2,2)*b(3,3)-b(3,2)*b(2,3))
s6 = s6-b(1,2)*(b(2,1)*b(3,3)-b(3,1)*b(2,3))
s6 = s6+b(1,3)*(b(2,1)*b(3,2)-b(3,1)*b(2,2))
RETURN
```

•AC•

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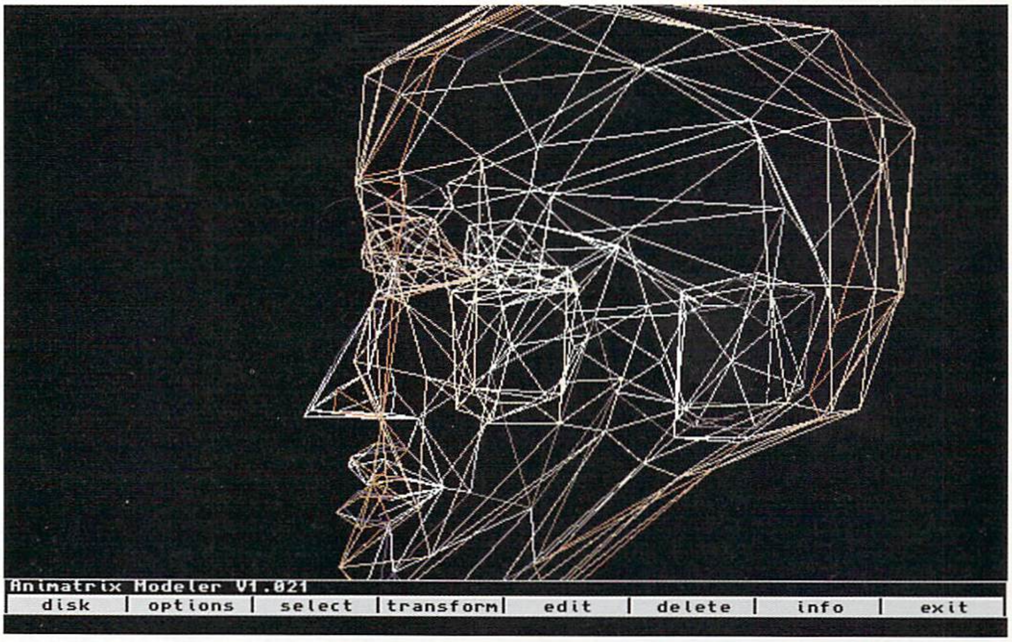
Generic Modelers: The Wave of the Future

by R. Shamms Mortier

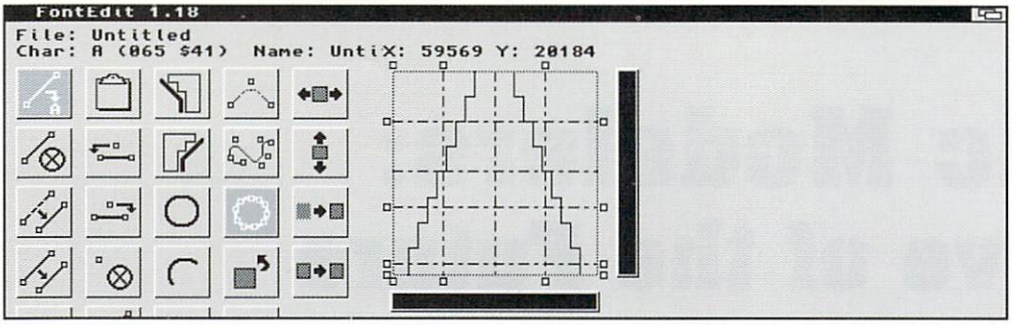
The Amiga is addressed by many software packages that offer the user the ability to professionally sculpt, render, animate, and output 3-D images. Unfortunately, unlike the handshaking ability of paint programs which allows for the transfer of IFF screens from one package to another, 3-D images come in many different formats. To help the Amiga 3-D artist port image files from one program to another, two processes were implemented. First, individual 3-D programs started to allow their owners to save and/or load 3-D images in a competitor's format. *LightWave*, for instance, allows you to load *Sculpt*, *WaveFront*, *VideoScape* and other formats. The second solution was offered by other vendors who produced "file translation" packages. The software called *InterChange* from Syndesis was the first of these, followed later by Axiom Software's *Pixel 3D*. In recent months, however, it has become apparent that the move is on towards packages that not only translate 3-D formats from one software platform to another, but are becoming 3-D modelers in their own right. This can be of great benefit to the Amiga artist/animator, because it allows for the porting of 3-D object files to a rendering package best capable of producing the required results. It also allows the new generic modelers to have 3-D sculpting options onboard that specific 3-D rendering/animation software might not contain. A generic 3-D modeler may or may not contain actual rendering tools and options. There are many such generic modelers coming into play in the Amiga universe. Let me focus upon four very different packages here, and give you a breakdown of their capabilities and uses.



AnimatrixVersion 1.1

This is a true generic modeler; it dedicates itself to sculpting organic forms in 3-D. It has tools for transforming imported 3-D objects extensively before saving them again to your favorite object format for rendering/raytracing. Animatrix has a "virtual reality" environment, comparable to the best Amiga 3-D/4D packages. Everything is accomplished here in full interactive 3-D, with no top/side/front triviews needed. The objects are always seen in a wireframe mode, though you can toggle a "shade" option, for the whole figure or selected polys. Redraw times are very fast, especially if you have an accelerator installed. When working in wireframe, edges closest to you are brightest, and those in the distance are progressively grayed out. This enhances the 3-D effect, and gives you a natural feel when operating on specific edges and points. With version 1.02, there is an even more advanced design option—real 3-D with the help of the Haitex glasses or with the supplied red/blue glasses. As far as I am aware, this is the first time that 3-D glasses have been used for professional design, as compared to their use for entertainment or viewing alone. This opens up a whole new window that could result in Amiga artists/animators taking a more serious look at the use of 3-D glasses as a design tool.

Diverse 3-D objects can be combined into one with this program, making it a natural place to take segments of your creation and then build it up a step at a time, perhaps for parts of a human or robotic figure. There are applications here for both medical imagery and architectural design. Extruding 3-D faces or points is easy. Point-clicking makes choosing the faces a snap. It's also easy to grab points in 3-D space and then manipulate them to your creative


FontEdit 1.18

File: Untitled

Char: A (065 $41) Name: UntiX: 59569 Y: 20184

DynaCADD's font editor.

heart's content—and doing so with 3-D glasses is a joy. Version 1.1 also has added cloning and XYZ reflection operations to selected points and associated faces as well as to whole objects. There is also a new variable zoom feature. This package represents some of the best features and creative direction of the new Amiga generic 3-D modelers.

DynaCADD Version 2.04

Of all of the generic packages listed here, this is definitely the most extensive and expensive. Its target market is much narrower then any of the others, meant for CADD (Computer Assisted Design and Drafting) and CAM (Computer Assisted Manufacturing) types. There is also a much higher learning curve connected with the use of this software. All of the commands have hierarchies of use and subcommands. The original version was IBM only; it was later ported to the Atari and Amiga platforms. Fearing the reported mass piracy of software in the Amiga community, Ditek decided to dongle-protect DynaCADD. Though I dislike dongles intensely as I'm always misplacing them, I might take the same precaution with a $1000 piece of software if it were my creation. Added to this is the difficult seating of a dongle in the joyport of an A2000.

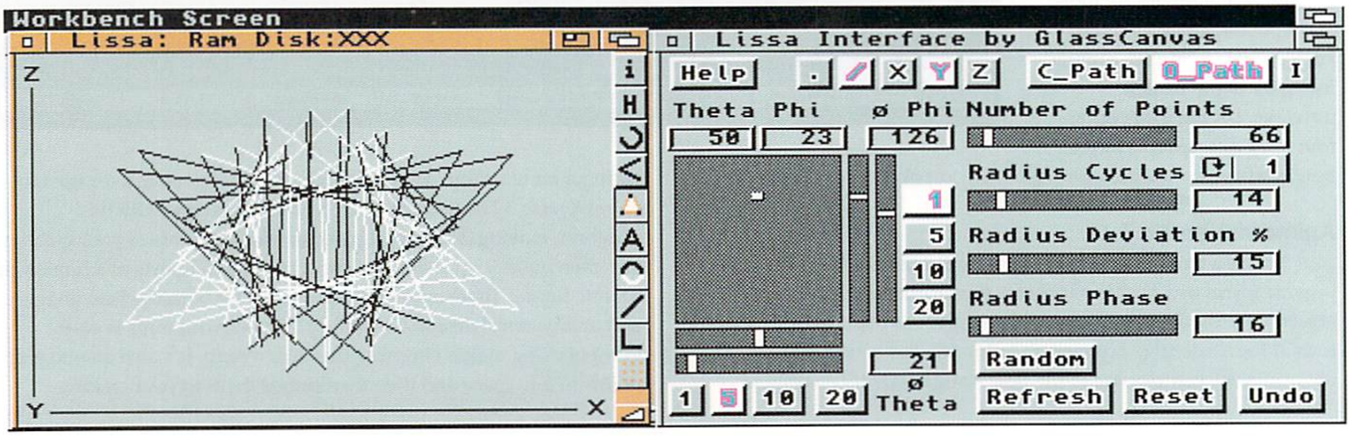
Caligari cannot internally generate curved surface primitives with the same quality as DynaCADD—probably why Octree Software has taken on the task of selling DynaCADD at half the normal price. In addition, DynaCADD has an excellent font design and manipulation program that Caligari owners could use to import very nicely structured 3-D fonts. DynaCADD addresses both a 2-D and a 3-D format, but except for those needing industry-standard drafting output to print/publish media, the main environment for Amiga artist/animators will be DynaCADD's 3-D structured object output.

Because DynaCADD was designed as a qualitative professional tool, its main feature is its accuracy. If you are involved in designing 3-D machine parts that have to be presented to a very critical audience, this is software to investigate. You would not use this software to generate more organic forms, as it is too cumbersome in this arena. All of the tools are separated so as to allow the design, placement, and viewing of harder-edged visuals. There are so many tools and icons, it is hard to for me to imagine working with this software without the manual—which is well written, illustrated, and clearly walks you through each process—at my side. I suppose if this were your only Amiga design software and you worked with it every day, you might be able to work without opening the manual after a while.

In addition to point-click entry of commands, you can also use a popup "value calculator." This is what looks like a scientific calculator, with all of the resident buttons and gadgets making numerical entry of data a snap. The graphic icons are well designed, though there are over 60 of them on the screen at any one time to choose among. The hierarchal arrangement of the icons are separated into levels on the screen, so that selecting primary commands initiates the display of connected second- and third-level sub-commands. You can also enter commands directly from the keyboard. By pressing the "tab" key, you can access a "command history" at any time, which brings up a list of all of the design commands used.

As far as design tools, they're all here and then some. There is also a large number of transformation/modification commands available (move, rotate, scale, delete, shorten, divide, copy/paste, mirror, etc.). Operations in 3-D include projection along an axis, revolving about a vector, sweeping (lathing), creating arrays in 2-D and 3-D, and manipulating the view.

DynaCADD has a great proportional font editor as well. Fonts can be redesigned and saved as 3-D object formatted files for import into the packages supported. These are from an onboard library of AGFA-Compugraphic sets. New font libraries consisting of specific technical character sets—such as electrical or architectural symbols—can be designed and saved. There is no set limit to the number of fonts you could create or redesign and save to your personal library. Created images can also be stored in 10 vector buffers and


Workbench Screen

Lissa: Ram Disk:XXX

Lissa Interface by GlassCanvas

Theta 50

Phi 23

ø Phi 126

Number of Points 66

Radius Cycles 1 14

Radius Deviation % 15

Radius Phase 16

ø Theta 21

saved to disk. DynaCADD is a very high-end Amiga generic modeler.

LissaVersion 1.2

What is a Lissajous path? It is a curve, either closed or open, that is generated upon the surface of a sphere. *Lissa* is the only Amiga program so far to generate this type of 3-D curve, and the results can be astounding. Once created, the curve can be used as either a path or as the initial structure of a 3-D surface. This can then be rendered in any of the Amiga 3-D programs that Lissa addresses. Lissa's interface is simpler than any of the other generic modelers mentioned here, but don't let this first glance fool you. The interface combined with keyboard commands in this updated version is capable of generating some unique 3-D surfaces not possible with other Amiga 3-D packages. It saves to most of the Amiga 3-D object formats.

Though this version of Lissa has added visible icons on the side of the edit screen, the keyboard commands still hold sway over the interactive tools. You can toggle a numeric data parameter screen on or off so you can see how your input is being registered, and you can easily switch among X-, Y-, or Z-axis views by a click of the mouse. There are several tutorial figures listed in Lissa's manual, and I would suggest you work through them to get a hang of the creative process. Lissa is also fully capable of being driven by ARexx scripts, and detailed command structures are listed. Also new to this version are help menus and savable configuration files, and the addition of "phase ripples" to curves. *Imagine 2.0's* spline paths are supported.

Pixel 3D 2.0

Pixel 3D converts IFF bitmaps to structured object formats that Amiga 3-D packages could use for ray-traced 3-D imagery. Version 2.0 is all in hi-res and is 3-D button designed. The Conversion Mode may be set to:

COLOR: The colors of the bitmap are maintained in the 3-D object.

MANUAL MODE: Reads the Chroma or Color values of the IFF image as indicators of extruded depth, producing Bump Maps.

AUTO DEFINED MODE 1: Colors are extruded according to the quantity of separate colors making up the image, and setting both the EXTRUSION VALUES and the INTENSITY RANGE.

AUTO DEFINED MODE 2: Extrusions based upon average color intensities within a Grid Unit.

MONO MODE: Ignores color data altogether.

BEVELING: Control the Beveled Inset (how much the bevel will intrude upon the face of the object) and the Beveled Depth (how deep into the extruded object the bevel will go).

Lissa
Technical Tools
2 S 461 Cherice Drive
Warrenville, IL 60555
(708) 393-6350
Inquiry #252

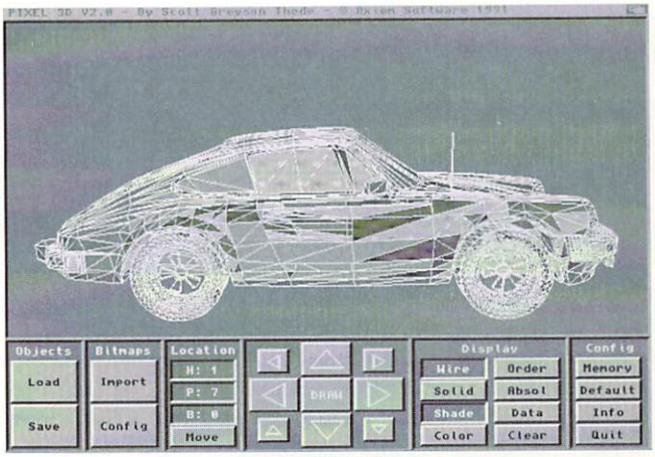
Pixel 3D
Axiom Software
1221 East Center St
Rochester, MN 55904
(507) 289-8677
Inquiry #253

Animatrix
duBois Animation
1012 North Chartrand Ave, F
Edmond, OK 73034
(405) 348-4670
Inquiry #254

DynaCADD
Ditek International
2800 John St, Unit 15
Markham, Ontario.
Canada L3R 0E2
(416) 479-1990
Inquiry #255

SPIN: Allows you to use a standard drawing program, like Electronic Arts' *DeluxePaint IV, to generate* object primitives that Pixel 3D can import and lathe in order to create 3-D structures for your favorite 3-D Amigaware.

There are eight buttons surrounding the DRAW command button. These allow you to twist, turn, enlarge, and reduce the object in 3-D space so that you know exactly what you're getting before you save it to disk. *Pixel 3-D 2.0* can actually be used as a 3-D structured drawing program on its own, or as software that makes every attempt to prepare the image for final exportation to a more option-oriented 3-D package. One of the attributes that accentuates its use as a 3-D modeler is its ability to take an imported structure and lathe (spin) it on any of the three (X, Y, or Z) axes. You could use this program along with a normal drawing program to create mega libraries of images for LightWave Toaster applications, with only about 10 percent of the effort that would be needed for creating them generically in LightWave itself. This is a generic modeling package that deserves consideration by any and all Amiga 3-D design obsessives.



Pixel 3D 2.0

The upgrade to Pixel 3D 2.0 is not 3.0, but is called *Pixel 3D Professional*. The new software offers many enhancements over the 2.0 version. Among these are bitmap to structured drawing conversions that are more than five times as fast, spline fitting of curves with eight smoothing options, point editing with zooms, new data reduction tools, and brand new user designable "router bits" for beveling! New file formats are included, among which are Caligari, Draw-4D, (Draw-4D Pro and Aladdin 4D are in the works), Imagine grouped objects, DXF, WaveFront, and Digital Arts. In deliberation is support for the DEV files in *Vista Pro* and *Scenery Animator*. The cost for the Professional version is $249 retail with a tentative $75 upgrade for Pixel 3D 2.0 owners.

I hope that you now have a better idea of the scope and variety of Amiga generic modelers. There are others out there, and many more on the way. Rest assured that a good idea in this industry does not go unnoticed for long, and that the trend is always towards making more of a proven good thing.

•AC•

Please Write to:
R. Shamms Mortier
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

CrossDOS 5.0 & CrossPC

CrossDOS 5.0

Consultron developed *CrossDOS* several years ago and it proved very handy for transferring files to and from IBM-formatted disks from Amigas. It accomplished this without hardware by introducing a new file system handling MS-DOS format in Amiga drives. Several files went into the L: and Devs: directories, and a new mountlist entry completed the package. A "MountMF" command turned your floppy drives into "schizophrenic" devices: If we called DF0: by the name DI0:, it behaved as an IBM drive. There was a separate set of commands to mount, format, and diskcopy either IBM or AmigaDOS disk formats. Consultron has released version 5.0 of CrossDOS which improves on this already successful product.

The Differences Between the Old and the New CrossDOS

You can no longer tell the difference between CrossDOS and AmigaDOS unless you choose that option during installation. The newest CrossDOS is transparent to your system. In fact, it's now part of AmigaDOS System 2.1 and System 3.0! CrossDOS bought after market is compatible with earlier systems like System 1.3, while the version installed in the latest AmigaDOS is not. During installation, you may choose to replace your old Diskcopy, Format, and Mount commands with the new CrossDOS versions. Then you may simply "Mount PC0:" as an IBM drive. The new recommended name for IBM disk drives is PC#: but you may specify any name you desire. Likewise, Diskcopy and Format work transparently with either AmigaDOS or MS-DOS disks. If you have one of the new Commodore HD drives, it allegedly formats in HD IBM format as well. The newest CrossDOS makes its presence known in only one way. If a floppy is mounted as an IBM drive *and* as an AmigaDOS drive, you will get two icons every time you load a disk—one named normally the way the disk *is* and one named for the way it *isn't*. For example, with an MS-DOS disk with volume name "Empty" in floppy drive 0, one disk icon will be labeled "Empty" and one will be labeled "DF0:????" to indicate that the Amiga side doesn't recognize the disk. This labeling is unambiguous, but two icons tend to clutter up your Workbench screen when using several MS-DOS floppy disks. When using AmigaDOS floppies, however, the non-MS-DOS icon disappears after a few seconds. If you have a virus checker running, and load an IBM disk, then the alarms will go off. Other than that, CrossDOS merges transparently with your system, and you can read and write MS-DOS disks as much as you like.

What CrossDOS Does and Does Not Do

CrossDOS will *not* convert *data*. If the Amiga can't use the data, then even though it can read and write the data, it still can't process it. CrossDOS cannot execute IBM programs. For instance, if you had *Lotus 1-2-3* on IBM disk and wished to copy its files to your Amiga hard drive, no problem. You still couldn't *run* Lotus, though, on your Amiga unless you had some type of IBM emulator. CrossDOS works seamlessly inside directory utilities such as *Directory Opus*. You may read, write, and copy files, relabel the disk name, create or rename directories, and set protection bits and dates. The following MS-DOS disk formats are supported:

CrossDos & CrossPC bring MS-DOS compatibility to the Amiga without the need for extra hardware.

The MS-DOS File System and the Software IBM PC-XT Emulator

by Merrill Callaway

Standard density, 80 track, 3.5" 720K floppies
Standard density, 80 track, 5.25" 720K floppies
Standard density, 40 track, 5.25" 360K floppies
Hard drives
3.5" 20MB Flopticals (requires Floptical drive)
High density, 3.5" 1.44MB floppies (requires Amiga HD drive)

CrossDOS *cannot read* 5.25" 1.2MB formatted disks as no Amiga hardware is available.

Features Worth Noting

Some notable features are:

ASCII text filter options.

Translation tables that handle international character sets.

Disk changes are sensed automatically (if the drive provides the proper hardware signal).

Floppy disk parameters are sensed automatically (double sided, single sided, 8 or 9 sectors per track, etc.).

".info" file extensions are supported for use with Workbench.

".info" is translated to ".inf" consistent with MS-DOS filename constraints.

Utilities to format, copy, and check the integrity of MS-DOS disks are provided.

No copy protection.

There are several filters and translation tables to assist you in transferring text files from AmigaDOS to MS-DOS. An icon with a hot key allows you to select global filtering for each drive.

New format and diskcopy icons are provided. If you click on these a requester comes up for you to choose which drive to format. *Caution!! Clicking on the format icon blithely lets you format your hard drive, just like that!* Beginners could get into a world of hurt here.

Conclusions

All in all, CrossDOS is improved, robust, transparent, and just the thing if you need to transfer files to and from MS-DOS disks. It would be worth the $59.95 by itself, but there's more!

CrossPC: An IBM PC-XT Emulator in Software

For no additional charge, you get an IBM emulator in *software*! While it's only an 8088 emulator for the obsolete IBM-XT with at most CGA color graphics, you *still* get—almost—a real IBM aboard your Amiga and multi-tasking too! You may remember *IBeM* from New Zealand, an IBM software emulator. Well, CrossPC is an improved, grown-up version, and it works well with certain exceptions.

I admit that I was skeptical and downright hesitant to tackle the CrossPC part of the review, but I was pleasantly surprised. Since I had to drum up some IBM software to try out on CrossPC, I feared that those huge IBM developers would be rather apathetic or even negative regarding an IBM emulator on the Amiga. What I experienced was the complete inverse of my expectations. I was simply overwhelmed by the supportive enthusiasm from every company I contacted including giants like Lotus Development, Borland International, WordPerfect, and Alpha Software. Even Price Club supported the idea by donating an MS-DOS operating system, since MicroSoft does evaluations of software only through dealers. They were all excited and eager to find out how well their programs work on an Amiga. After all, we represent three million customers who can use MS-DOS software by investing only 50 or 60 bucks instead of several hundred for a bridgeboard.

Getting Started

You will need to get a complete operating system which is a little hard to find as MicroSoft supplies the complete system only to *dealers of hardware as part of the hardware purchase*. Fortunately for us, Consultron is licensed by MicroSoft to sell the whole MS-DOS (price: $99).

How Does CrossPC Work?

All things considered, it works pretty well. The manual is pretty sketchy regarding MS-DOS and I had to learn that on my own, so I won't bore you with my struggles in that area. Installing MS-DOS software can be a pain because much of the time, MS-DOS software comes on disks my Amiga can't read, such as HD 5.25" disks. Borland's *Quattro Pro* came on HD 3.5" disks. I tried to get an Amiga HD drive to test with CrossPC and CrossDOS. The only company that *did not* cooperate with this review was—guess who? That's right, Commodore at first denied that HD drives would fit in an A3000; and when I persisted that I knew better, they said they'd have someone call me right back. Suffice it to say that I'm *still waiting* three weeks later. Anyway, I used a friend's IBM computer to translate these "wrong" disks into 720K 3.5" MS-DOS disks that installed my software. Once the MS-DOS 5.0 was in, all the program samples I received installed without problems. One module of Lotus 1-2-3, called WYSIWYG, complete with fonts and screen graphics put up a black screen, the graphics end of it not working with the

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Circle 121 on Reader Service card.

emulation display. However, the "plain" Lotus 1-2-3 did very well. *WordPerfect 5.1* and Quattro Pro work as they are supposed to, complete with mouse pointer. *Alpha Four* database installed all right, but crashed out of the CrossPC, leaving an "illegal instruction" error message. I confirmed that this is the fault of CrossPC, as the same disk set from Alpha Four installs and works fine on a real IBM machine. The consensus of opinion from IBM experts who also belong to my Amiga User Club is that Alpha Four probably polls the hardware for a math co-processor, by trying to send it an instruction. In an ordinary IBM machine there would exist the facility to handle a failed response and to continue; not so in CrossPC. So out of four popular IBM programs I selected, one and a half of them don't work with CrossPC. I must therefore suggest caution before you rely on CrossPC to run all your IBM software.

Operation

To enter MS-DOS, you just double click on the CrossPC icon and the computer boots in MS-DOS either from the "A:" drive floppy, or from a hard drive that you've configured for MS-DOS and called "C:". The CrossPC icon tooltypes let you choose which drive is the system disk. CrossPC includes a hard drive utility to configure a hard drive partition to MS-DOS. Use that tool and ignore the manual where it talks about changing the file system and so on. I got in trouble there. I succeeded when I configured a hard drive partition in the Amiga FastFileSystem (choosing *not* bootable) and then used the CrossPC hard drive utility. Finally, I formatted the partition in MS-DOS format using CrossDOS. Then I could copy the MS-DOS files over or install software on this partition.

Drawbacks

OK, what's the bad news? The slow speed. There are two reasons; one is perceptual, and one is real. First, the way that a mouse is implemented in MS-DOS isn't nearly as fast as the use of "sprites" in the Amiga. Len Poma of Consultron put it graphically, "On the IBM, the software is constantly asking, 'Where's the mouse? Where's the mouse? Where's the mouse?...' whereas on the Amiga we have sprites to keep track... much faster." Add an extra software layer for the emulation, and you have a mouse that even a three-legged cat could catch. The other thing is that when you perceive the speed of the Amiga side of an A3000 and then start to use the equivalent of an XT, then it's like coming off the freeway into a 15 mph school zone. The "speed hangover" makes the XT seem even slower. Len Poma has tested CrossPC on an Amiga 3000 with a Norton Speed Index of 1.0 to 1.2 times the speed of a nominal XT. On an A500 or an A2000, this index plummets to 0.2. CrossPC may be speeded up a little by choosing monochrome output. Only primitive CGA color is supported, so you're not missing much. For real graphics, simply hit Left Amiga M and go back to the Amiga side! You can happily multitask, so you have the option of locking or unlocking the file access from the Amiga side. Consultron recommends locking file access to insure that data isn't corrupted.

Conclusions

I believe that CrossPC would feel unacceptably slow on an A500 or an A2000 for regular work, barely acceptable on a 25MHz A3000, and perhaps OK on an A4000. Because of its slow speed and the fact that some IBM programs don't work with CrossPC, I think anyone wanting to do serious work should get an IBM, or at least a bridgeboard. Remember, however, that as a secondary, or emergency IBM computer inside your Amiga, CrossPC is certainly useful, convenient, and inexpensive. For instance, I printed a friend's WordPerfect 5.1 resume on my laser printer with no adjustments necessary. Lotus 1-2-3 and Quattro Pro also work pretty well, even though their speed is leisurely. On the down side, using the menus in any of these programs is unacceptably slow using a mouse. The "/" commands in Lotus work much faster than other menus because they don't tax the graphic emulation much. CrossPC is a useful product for the fastest Amigas and an occasional emergency emulator for the slower machines. If you deal with IBM's world at all, CrossDOS alone is worth the money on any Amiga, so consider CrossPC to be a bonus no matter how you figure. It's an inexpensive way to learn MS-DOS and IBM software without buying another computer or an expensive bridgeboard.

•AC•

CrossDOS and CrossPC
Consultron
8959 Ridge Road
Plymouth, MI 48170
(313) 459-7271
Inquiry #258

Please Write to:
Merrill Callaway
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

bug bytes

The latest in tips, workarounds and upgrades

by John Steiner

product: Amos 1.3
re: no bugs
source: EMail

In electronic mail this month, I received a couple of letters from Howard Lin of San Jose, California. He discovered what he thought to be a bug in the *Amos 1.3* SCREEN OPEN command, and found that the problem was a bug in documentation. He did not own the professional version of the software, but discovered after reading the manual for the*Amos Professional* version that being unable to open the screen wider then 1023 pixels wide is an undocumented limitation in the Amos 1.3 manual. The limitation is clearly stated in the Amos Professional manual.

product: Final Copy
re: printing to Apple LaserWriter
source: mail

Scott Carr of Tulsa, OK, writes regarding a problem he is having with *Final Copy* by SoftWood. He comments, "[As a] graduate student and lab instructor at the University of Tulsa, I have access to Postscript printers. I have attempted to do with Final Copy what I have been doing with PageStream 2.2, and that is printing a document to a Postscript file, and printing it on one of these fine Apple LaserWriter printers."

He has been successful in sending Postscript files to the printers by using either of two methods, by uploading the Postscript file to his Sun account and copying it to the printer, or by formatting a MS-DOS 720k disk (via ATonce or MultiDOS) and copying the file to it... and finally printing it from a PC via TeX's print spooler. In both cases he found that the output was incredible, and the printing was flawless.

Neither method works with Final Copy, and the printers fail to print even a single sheet. He contacted tech support at Softwood, and they were not able to identify why his particular installation fails, as those techniques should work with Final Copy. He has ordered the Final Copy II upgrade, and hopes the problem disappears; however, he wonders if others have run across this problem and, if so, whether they found a workaround for it. If you have a solution to Mr. Carr's Postscript printing problem, please pass it along.

Scott is also looking for a printer driver for the Okidata 182 printer. He has tried both Okidata and Commodore, and even got the PrinterDriver Generator from Fred Fish, went through the Oki 182 manual, and tried to make his own, but to no avail. If anyone has made an Okidata 182 printer driver, he'd be interested in getting it.

product: CLtd. Kronos controller
re: workaround
source: fax

Mike Lehman of Redondo Beach, CA, faxed a response to the November 1992 "Bug Bytes" regarding autoboot functions on the CLtd. Kronos hard disk controller under Workbench 2.04. His solution comes from the AmigaDOS release 2.0 Getting Started documentation. Notes in the manual on page 15 and 16 on editing the Mountlist provided the solution. He writes, "You have to delete the lines referring to L:fastfilesystem or globevec0-1, both of which are found in the Mountlist for harddisk partitions for the Kronos. You should also make sure that DOSType is set to the value 0x444f5301." He comments that this corrected the Kronos autoboot problem.

product: GPfax 2.01
re: patch
source: fax

Mike also noted that he was having problems with GPfax 2.01(s) on his Supra FaxModem Plus. He reports that he was able to finally send and receive faxes properly only after obtaining a set of patches from a friend who had the same modem. The patches upgraded GPFax to 2.041 Supra version among other things, and solved his fax transfer problems.

product: A2000 keyboards
re: bugs in refurbished boards
source: mail

It appears that an old Amiga 2000 keyboard problem has resurfaced according to a letter from Al Goulet of Port Colborne, Ontario. He found that Dynamix's *A10 Tank Killer* v. 1.5 fails to respond after striking the first key on the keyboard after the game loads. He contacted Sierra and they told him that they were aware of the problem but do not have a fix for it. The problem appears only on early German-made A2000 keyboards, which it appears have been recently reappearing after having been refurbished and sent out as replacements for newer defective keyboards. Dynamix expressed the desire to resolve the situation; however, it may take a while. Al credits Sierra's customer support as being "first class" in helping him determine where the problem lies.

At one time in a much earlier column, (V3.3), we reported on a fix to this problem for those early keyboards involving the addition of a couple of capacitors. At the time, Commodore was reported to be repairing this problem in all refurbished keyboards, so that fix may no longer apply to this more recent problem. If you have found yourself in this situation, or have discovered a workaround for the keyboard problem, let me know.

product: Vortex 3.0 software
re: free upgrade
source: mail

I received a letter from George Anderson of Coquitlam, British Columbia, regarding a free update to version 3.0 Vortex software for the ATOnce PC emulator. The upgrade now supports Workbench 2.0 and MS-DOS 5.0. Vortex also sent along a spec sheet on the Vortex 386 PC/AT emulator, the Golden Gate. He also notes that he was having a problem with compatibility between a GVPA500-HD+ hard disk and his Vortex unit. The drive failed to operate reliably in maintaining multiple partitions. He notes the problem evidently lies with the GVP hard disk and not the Vortex unit as he sent the drive in for repair, and it is still being worked on. He also tried the newer GVP A500 PC 286 drive subsystem and it works just fine.

tech support: ICD
re: ROM release for IOMEGA
source: mail

I received a letter from Chris Edgin, a technical support representative for ICD, Inc., regarding John Kwan's letter quoted in the November 1992 "Bug Bytes." Mr. Kwan was looking for a workaround to correct a problem with his IOMEGA 44MB removable drive subsystem. Mr. Edgin sent along copies of correspondence between Mr. Kwan and himself. In his correspondence, Mr. Edgin notes that an AdSCSI 2000 equipped with 3.05 ROMs or greater should have no problem operating with an IOMEGA drive on the A3000 under Kickstart 2.04. He also notes that soon they will be releasing new (version 3.5) ROMs and harddrive preparation software (version 4.0) that includes support for magneto-optical drives and floptical drives while retaining compatibility with the IOMEGA drives.

product: AdRAM 540
re: conflict with clock
source: mail

Pete Guerin sent a follow-up letter regarding his hardware fix for the AdRAM 540 board. He writes, "When you wrote the response that ICD gave you, about using an earlier version of SetClock to fix the problem, I felt that you and ICD missed the point. While it is true that the earlier version of SetClock will clear the symptom once the problem has occurred, it does not *solve* the problem. The only cure I have found is to remove the write-enable pin of the clock chip from its socket and wire it to a pull-up resistor and a switch. When the switch is open (its normal state) the write-enable signal from the computer cannot get through to the clock and so no garbage may be written to it. When the switch is closed (only during the time that I wish to change the clock's time and date), the computer can write data to the clock without difficulty." He continues, "Before doing this hardware modification, I had gone through three replacements of my AdRAM 540 board in as many months. And none of the replacements fixed the problem. After putting in the hardware modification, I can happily report that the same board has been keeping accurate time (within reasonable tolerances) for the last *several* months."

Mr. Guerin wonders if others have had similar problems. It also occurred to me that there might be some other component or accessory that is causing garbage to be created in the clock memory area, as no one else has commented about this problem, at least to this point. If you have experienced similar clock-oriented problems, whether or not you happen to have the AdRAM board, pass the information along, especially if you have found a solution.

product: WordPerfect
re: opening window
source: mail

Peter Orvis of Arlington, VA, has found a workaround for a problem in WordPerfect when running under Workbench 2.04. The symptom occurs when trying to open the Printer Control window to change print options or actually print. The window would open briefly on the screen, and then almost immediately close. WP technical support suggested the problem might be a bug in the software, and sent him a complete set of replacement disks. The new disks didn't help, however.

He explored the problem with SnoopDOS, a utility he found on Fred Fish disk number 451. Under Workbench 1.3, when the Printer Control window is opened, WP looks for the file "sPRINTER.PRT." If it doesn't find it, it then goes on and tries to find the full file PRINTER.PRT. If that file is found, then all is well and the Printer Control window stays open and operates as it should.

Under DOS 2.04, however, if WP doesn't find the "short" file it doesn't look further, but closes the Printer Control window at once.

He writes, "For various reasons, I didn't have any "short" files on my hard disk; therefore WordPerfect couldn't open its Printer Control window when operating under DOS 2.04. The fix was obvious: either rename the PRINTER.PRT file sPRINTER.PRT or actually make the necessary 'short' files. For complete operation, there also have to be an sFONT.PRT and, if the printer definition calls for the use of a sheet feeder, an sFEED.PRT."

As I use WP to write "Bug Bytes" every month, I was curious to see if my own A3000 has the "short" files. A quick check of the directory confirmed they were all there, and evidently that's why I have never experienced the problem. I think the small files Mr. Orvis is missing are usually created during the printer installation process. I might suggest that if you are having the same problem, and are missing the "short" files, before duplicating the larger file, you might try reinstalling the print program from its original disk. Then if that doesn't work, use Mr. Orvis' work around.

product: expansion beyond 512K Agnus
re: incompatibility with two games
source: mail

Dennis Hillstrom of Colorado Springs, CO, sent a fax to inform those people who have upgraded past the 512K Agnus chip that there is an incompatibility problem with SSI's "Heroes of the Lance" and "Dragons of Flame." He writes, "After purchasing these two products, I found that upon attempting to boot, there would be a moment of disk access, then an *immediate* Guru. I own three other SSI products, none of which exhibit this problem."

Correspondence with the company brought immediate replies, and an offer to exchange both games. If you have been successful in getting these games to work in your expanded Agnus system, let me know about your experience. Meanwhile, Mr. Hillstrom will be purchasing more SSI products as he rates their support as outstanding. He concludes, "This is the type of support that generates loyal Amiga customers."

product: Agnus and 6800
re: upgrade clock speed
source: mail

Victor Brown of Morton, WA, writes regarding a question about why Amiga systems can't be simply upgraded in clock speed by interrupting the 7.16 line between the Agnus and the 68000, and installing a new crystal to power a faster version of the 68000 CPU at a faster clock rate. If you have experience or knowledge why a system cannot be easily upgraded to a faster CPU (or if you know of a way you can make this upgrade) pass the information along.

That's all for this month. If you have any workarounds or bugs to report, or if you know of any upgrades to commercial software, you may notify me by writing to:

John Steiner c/o Amazing Computing
Box 2140
Fall River, MA 02722

...or leave EMail to:
John Steiner on Portal
73075,1735 on CompuServe
Internet mail can be sent to John_Steiner@cup.portal.com
FAX John Steiner at

•AC•

Using Laser Disc Players with the Amiga

by Ron M. Battle

With the explosion of multimedia in the Amiga community, a laser disc player is rapidly becoming an essential component for many applications. Advantages offered by laser players include full motion video, storage of large amounts of still pictures, and random access. Most common players have built-in RS-232C serial ports and are manufactured by Hitachi, Pioneer, or Sony.

Laser Fundamentals

The standard disc is a 12-inch plastic platter. Information encoded on the disc actually consists of alternating reflective areas and opaque pits. A laser beam and an elaborate system of mirrors are used to bounce light off the disc and retrieve information back through a photodiode. The older players used red helium-neon lasers; the newer players use semiconductor laser diodes. A player has two different operating modes, characterized by differences in recording density and rotational speeds. In standard play mode, the disc rotates at 1800 revolutions per minute (rpm), and data is read at a constant angular velocity (CAV). Because of the rotational speed, one rotation takes 1/30 of a second, and contains a single video frame. Each rotation is considered a track and each side can store 54,000 tracks or 54,000 still frames. This translates to 30 minutes of full motion NTSC video. This mode is most useful for multimedia applications because of the ability to randomly access each still frame (picture) and have variable-speed forward and reverse playing of video segments. Because of the constant angular velocity, the data density is four times greater at the disc center than at the edge! In the other mode, extended play, data density is the same for all frames, but the central tracks contain one frame, and the outer tracks hold 4 frames. The player rotational speed varies from 600 to 1800 rpm so that data is read at a constant linear velocity (CLV). Each side of a CLV disc can hold one hour of video and time codes are used instead of frame numbers. This mode was designed for viewing movies so that multiple discs would not be needed. The more expensive players (Pioneer LD-V8000) have frame buffers so that special effects can be performed on CLV discs, but the cost is prohibitive. So, for multimedia use, CAV is the way to go. Of note, laser discs are considered an analog and read-only medium, although some players also have digital audio tracks, and there are *very* expensive recordable laser decks.

Laser Levels

There are three levels of control of a laser disc player. Manual control, or Level 1, involves using the front panel buttons, remote control, or a LaserBarcode reader. This mode would be quite tedious if it weren't for the relatively new development of LaserBarcodes, developed by Pioneer. Using a reader wand, the user can scan a bar code in a teaching text, causing the player to search to a frame, play a certain segment, etc. There are currently 18 Pioneer LaserBarcodes, also supported by other manufacturers. There is even a new standard for compact disc bar codes.

Level 2 control involves programs encoded on audio track 2 of the disc and loaded into the laser player during playback. At this level, no computer is needed.

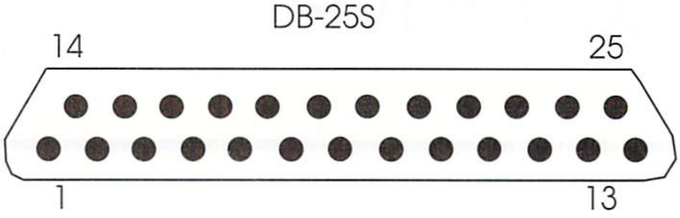
Level 3 is what multimedia is all about: computer control of a laser player. The computer communicates with the player through an RS-232C serial port, sending commands and receiving status information. Programs like AmigaVision have drivers for numerous laser players, forming the core of an interactive system. Other programs can communicate by utilizing ARexx compatible serial port managers. Unfortunately, the current RS-232C laser players have no command for auto-reverse. The user must manually flip over a disc to access the other side.

Hitachi Players

Hitachi machines are actually the most affordable of the bunch. Unfortunately, Hitachi has ceased production of laser players, now concentrating their efforts on the burgeoning compact disc market. Represented by the models VIP 9500, 9550, and 9600, these players typically have seek times from frame 1 to 54000 of less than three seconds. All models are the same basic player that underwent ROM upgrades and retained compatibility. See Figure 1 for a diagram of the RS-232C serial connector and hook-up information for making a custom cable. The serial rate is fixed at 9600 baud, 8 data bits, no parity, 1 stop bit (8N1). Commands are usually sent as single bytes, and a "job end" signal is expected back, which is the original command plus 80H (hex). Multibyte instructions consist of a one-byte "verb" and two or more variable bytes, and are terminated with the "enter" command (41H). To initialize the player, send the "remote" command (68H), expect back E8H, then send the "play" command (25H) and expect back A5H. The sequence may take 15 seconds to spin up. These players don't have any special features like character generation, digital audio tracks, or LaserBarcode compatibility, but the street price is less than $500.

Poineer Players

Pioneer players are well known, pricey, and represented by models CLD-V2400, LD-V2200, 4200, 4400, and 8000. As the model number increases, so do the price and features, but the seek times decrease! Typical access times vary from 5 seconds to 0.5 second. See Figure 3 for a diagram of the connector and hook-up information for making a custom cable. Usual serial baud rates are 1200 or 4800 for the low-end machines and up to 9600 for the more expensive models. I like how the command set is implemented in these players. The computer can send up to 20 characters, terminated with a carriage return. An 'R' and carriage return are usually sent back. For example: 12345SE<CR> would search to frame 12345. These players can generate characters for on-screen text overlay, usually have LaserBarcode compatibility, and have digital audio tracks on some models. The LD-V6000 models have a DB-25-pin connector



Custom cable: DB25 female to DB25 male
Amiga 500/2000/3000

Amiga pin		player pin	
TxD	2	2	command
RxD	3	3	data
RTS	4	4	host ready
CTS	5	5	player ready
GND	7	7	GND

25-pin female connector

pin	function
1	GND
2	command
3	data
4	host ready
5	player ready
7	GND

Figure 1: Hitachi players.

and a different command set compared with the usual Pioneer players. The CLD-V2400, a new player, has digital audio tracks, and can play videodiscs, CD audio discs, and CD-Video discs. Pioneer is serious about the educational multimedia market, evidenced by their willingness to provide information and support for their products.

Sony Players

Sony players are also well known and pricey. Common models include the MDP-1100, LDP-1200, 1450, 1550, and 2000. Seek times vary from 1.5 seconds to 6 seconds. See Figure 2 for a diagram of the connector and hook-up information for making a custom cable. You can also use a standard serial cable with a NULL modem adapter. Usual serial rates vary from 1200 to 9600 baud. The communication protocol for these players is not very efficient. When sending data to the player, one character at a time is sent, and a Sony ACK (0AH) is expected back. That is a lot of overhead compared to the Pioneer players. The most expensive players like the LDP-2000 do not have digital audio tracks or text overlay. Instead they are made for heavy duty use and allow upgrading with plug-in boards. An interesting model is the 1550, which allows seamless instantaneous track jumps (+- 200 tracks), useful if you are doing simulations and have branching video segments less than 7 seconds long. The most intriguing model is the new MDP-1100. It can play videodiscs, CD-Video discs, and CD audio discs. Also, it is LaserBarcode compatible, has clear scan on CLV discs, S-VHS output, and has a street price of $650. Second only to Pioneer, Sony is helpful in supplying information and support for its players.

Alternatives

Even at the low end, these players are expensive when compared with consumer entertainment models. If you search diligently enough, you might be able to find a used Sony LDP-1000A. This model can usually be found for less than $150, is built like a tank, has a maximum access time of 5 seconds, and has a fixed serial rate of 1200 baud. Another alternative is to buy a cheap consumer model without the RS-232C port and computer control it by infrared using the AirLink hardware/software combination from Geodesic Designs. I am amazed every time I use this system. It is much more than an ARexx compatible program that learns the commands from any infrared remote controller. Contact Geodesic for more information. The disadvantage of using infrared control is that you can't get back any status information, but few applications really need this. There are also players available from Philips, supported in *AmigaVision*, but they are expensive and not commonly used. Panasonic has also entered the multimedia arena with a new RS-232C player, the LX-150. An interesting new format is LD-ROM, developed by Pioneer. This format allows separate tracks for analog video, analog audio, and digital data (ISO-9660) on one laser disc. Pioneer sells the DA-V1000 adapter for LD-ROM conversion of the 4200, 6000A, 6010A, or 8000 laser players. Also, you power multimedia users might take a look at the Pioneer LC-V330 jukebox system. It has a capacity of up to 72 discs, 25-second maximum access time, and can play both sides of the disc. Think of the possibilities.

Conclusions

Hopefully, this information has piqued your interest in getting a laser player hooked up to your Amiga. After considering all the different machines, I think I would get the Sony MDP-1100. It has an amazing amount of features for the price and has only one major tradeoff: a sluggish maximum access time. An access time of 6 seconds is inexcusable in 1992. My second choice would be the Pioneer CLD-V2400. For those of you interested in the programming involved in controlling a laser player, try my LDP program, available on Fred Fish disk 635. I've also included the address of TLR, a company that can repair most players when the inevitable happens. Contact them also about used players for sale. For a catalog of interesting laser discs, contact Pioneer and The Voyager Company.

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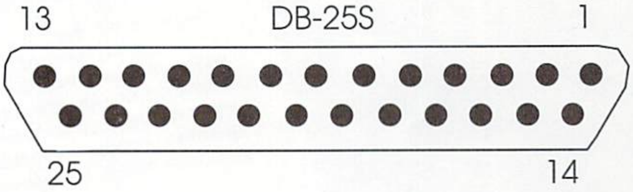
25-pin female connector

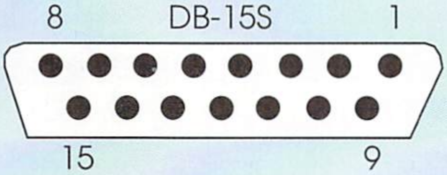
pin	function
1	frame ground
2	TxD
3	RxD
4	RTS
5	CTS
6	DSR
7	GND
20	DTR



Custom cable: DB25 female to DB25 male
Amiga 500/2000/3000

Amiga pin		player pin	
TxD	2	3	RxD
RxD	3	2	TxD
RTS	4	5	CTS
DSR	6	20	DTR
GND	7	7	GND
DTR	20	6	DSR

Figure 2: Sony players



Custom cable: DB25 to DB15 male
Amiga 500/2000/3000

Amiga pin		player pin	
TxD	2	3	RxD
RxD	3	2	TxD
CTS	5	4	DTR
DSR	6		
GND	7	1	GND

15-pin female connector

pin	function
1	GND
2	TxD
3	RxD
4	DTR

Figure 3: Pioneer players

For more information contact:

Sony Business and
Professional Group
Multimedia Systems Division
3 Paragon Drive
Montvale, NJ 07645
(201) 930-6034

The Voyager Company
1351 Pacific Coast Highway
Santa Monica, CA 90401
(213) 451-1383
(Supplier of interesting CAV
and CLV LDs)

TLR/ATMAD Enterprises
Steve Thompson
2070 East 3185 South
Salt Lake City, UT 84109
(801) 467-1156
(Repair and sale of used
players)

Geodesic Designs
PO Box 956068
Duluth, GA 30136
(404) 822-0566
(Supplier of AirLink)

Hitachi Denshi America, Ltd.
Consumer Division
150 Crossways Park Drive
Woodbury, NY 11797
(516) 921-7200

Panasonic
Consumer Division
One Panasonic Way
Secaucus, NJ 07094
(201) 348-9090

Pioneer Communications of
America, Inc.
Multimedia Systems Division
600 East Crescent Avenue
Upper Saddle River, NJ 07458-1827
(201) 327-6400

Please Write to:
Ron M. Battle
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

The latest from Commodore:

The Amiga 1200

The A1200 features Workbench 3.0, a 68020 processor, and the Advanced Graphics Architecture.

The Amiga 12000 is Commodore's newest release in what has been an unprecedented series of new Amiga releases and improvements. The A1200 released at COMDEX Fall '92 in Las Vegas supports the Advanced Graphics Chip Set introduced with the Amiga 4000 as well as the PCMCIA expansion standard present on the Amiga 600. At $699.95 for a base machine less hard drive, the Amiga 1200 offers the best of both advanced Amiga architecture and price performance for the consumer.

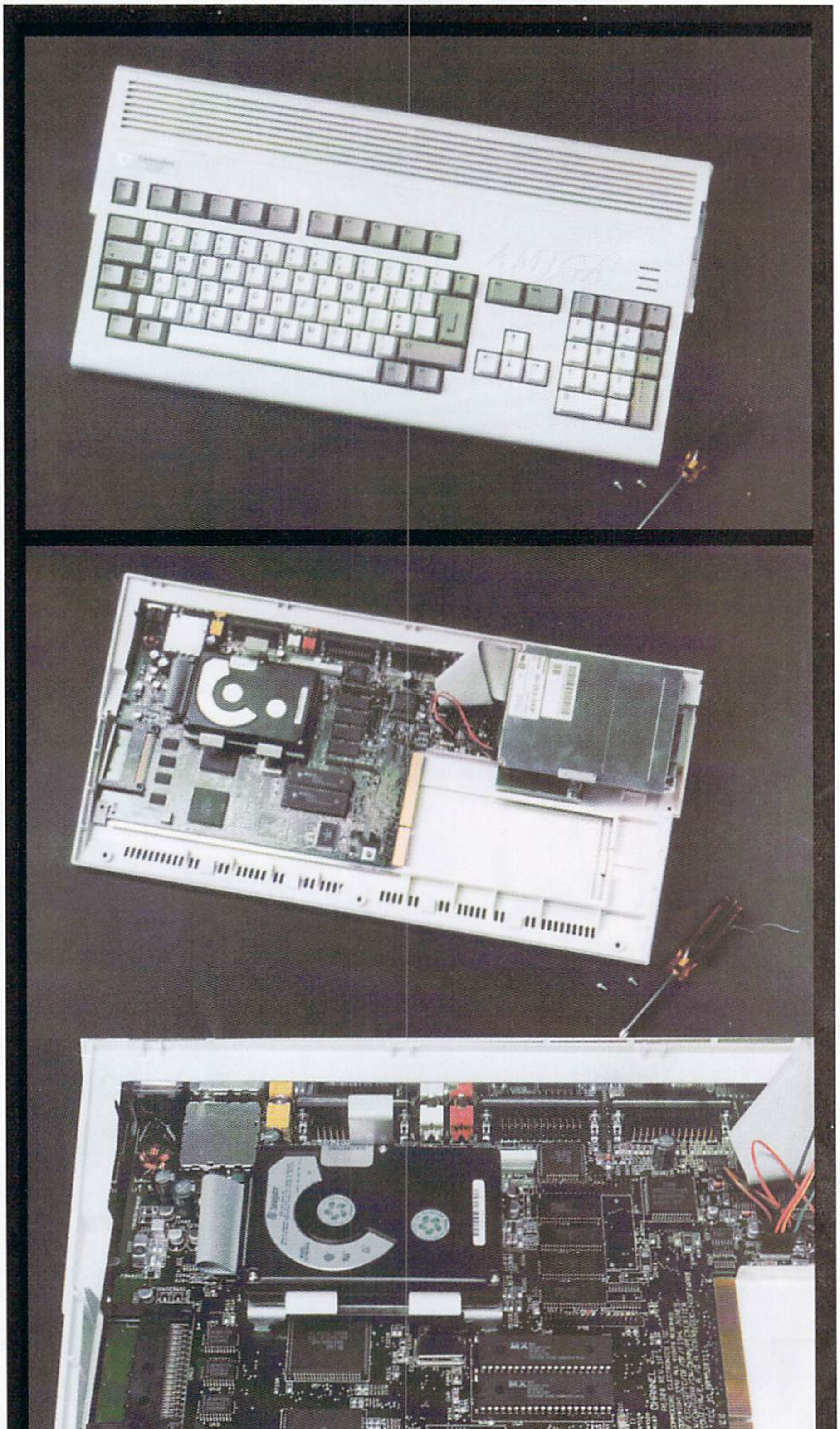
Looking surprisingly like Commodore's extremely successful Amiga 500, the A1200 has room for an internal hard drive, 2MB of memory, the new AA chip set, AmigaDOS 3.0, CrossDOS, a 150-pin expansion port, and more. Early reports from Europe note that the A1200 is extremely popular with consumers. Commodore U.K. announced the Amiga 1200 at The Future Entertainment Show in London (November 5-8). Although the show was a mixed platform event, Commodore dealers were completely sold out of the A1200 before the close of the event.

North American Commodore dealers seem to have the same feeling for the machine. Orders have been placed for the new Amigas to be delivered around the middle of December: a perfect touch for a bright Christmas retail season. When added to the consistently sold-out Amiga 4000, it appears Commodore's newest Amiga computers are in very great demand.

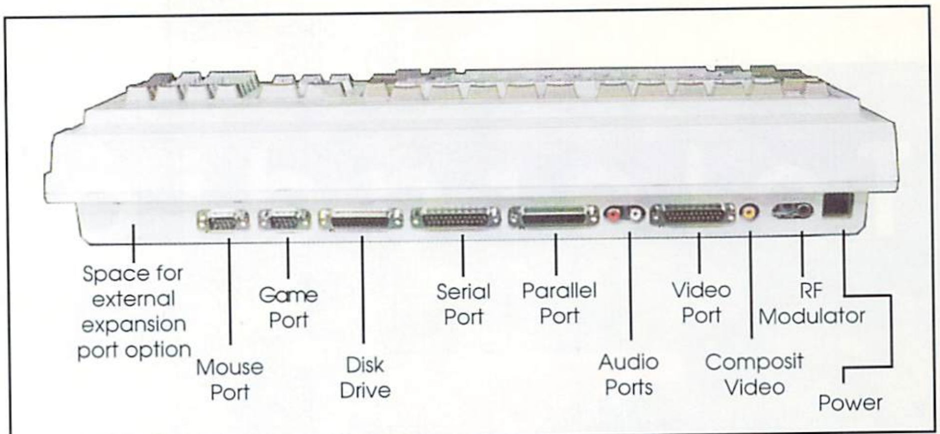
AA Chips

The Advanced Graphics Architecture chip set, also known as the AA custom chip set, was first introduced in the Amiga 4000. Although downwardly compatible with older ECS programs, the AA chips allow the A1200 (as well as the A4000) to create graphics in expanded resolutions with enhanced video capabilities. The AA chip set produces resolutions ranging from 320x200 to 1280x400 (more with overscan, including 800x600) with a color palette of 16.8 million colors with 2-256,000 user-definable colors

The AA custom chips' color palette accesses 256 simultaneous colors out of a palette of 16,777,216 colors in all resolutions. Included is an improvement over the previous HAM mode which supported lo-res only. The new, 8-bit HAM mode will display as many as 16.8 million colors in all supported resolutions with the correct monitor.



Top: The sleek lines of the A1200 look surprisingly like the A500. Center: The 150-pin expansion slot (lower right) opens the A1200 to vast opportunities. Bottom: Surface-mount technology is again used in the A1200 to insure a high-reliability product.



The three chip standard from the older chip set has been retained, but, as in the A4000, critical improvements have been made. Based on the Agnus chip, Alice is the main Amiga chip bus controller for the 32-bit data bus. Lisa, replacing Denise, provides video output to 24-bit quality. Paula continues to handle 8-bit audio functions, floppy disk I/O, RS-232 serial I/O, as well as the potentiometer inputs and interrupt control.

This new configuration should also offer the increased speed promised for the changes in the video RAM of the Amiga 4000. Accoridng to Commodore, the A1200 profits from the same 32-bit architectural changes in the video RAM and IC's to yield a similar increased bandwidth. This increase in bandwidth will allow the A1200 to work faster than its counterparts.

Software Support

Software developers such as Digital Creations and Electronic Arts are creating new products for the AA chip set. Electronic Arts is upgrading their very popular *Deluxe Paint* program to handle the new resolutions.

Digital Creations is about to release *Brilliance!* another paint program with AA chip support. Although Digital Creations has produced this product for the AA chip set, they have made the product downwardly compatible for earlier Amigas. Brilliance! contains a wide array of features currently not available on the Amiga market. Radial fills, multiple undo's, a very quick interface, and more should make Brilliance! a number-one choice with dealers for showing off the new Amigas.

ASDG, Gold Disk, Impulse, INOVAtronics, New Horizons, SCALA, and more have either already implemented changes to their current products or are planning on upgrades in the very near future. Commodore has already stated that they expect a 100 products to support the Amiga's new chip set by January.

A1200 Hardware

The Amiga 1200 uses the surface-mount Motorola 68EC020 microprocessor. An optional (factory upgraded) surface-mounted 68881/68882 FPU is also available. The new surface-mount technology has been a mainstay on all new products introduced by Commodore recently. This has greatly decreased manufacturing problems and has improved the Amiga's dependability.

The internal IDE hard drive interface will support a vast number of low-profile drives currently on the market. Corporate policy was still unclear on how users would be able to secure hard drives for their systems. Most agree that the first systems will come without the drives with the Amiga dealers being allowed to install third-party drives.

Unfortunately, A1200 owners are not going to see the new high density 3.5-inch floppy drive available on the A4000. As in the A600, CBM has opted for the standard 880K drive. However, this drive will support CrossDOS for 760K MS-DOS disks.

The PCMCIA port found on the A1200 is configured similarly to the PCMCIA on the A600. This standard is supported by over 300 developers in the IBM PC market. Currently there are FAX/Modems, 40 MB hard drives, memory cards and more available through these specifications. As of press time, only one company had released product specifically designed for the A1200 and A600. New Media Corporation of Irvine, California has released a PSRAM 2MB ($240) and a 4MB ($385) expansion card.

That's No RAM Expansion!

There is a surprise inside of every A1200. CBM has used the position normally reserved for a memory expansion board (the area behind the access panel beneath the machine) and installed a 150-pin Local BUS. This connector is similar to the expansion port found on the side of the Amiga 500, except this connector is a direct 32-bit port. This allows high-speed 32-bit RAM expansion, Coprocessor expansion, and CPU accelerators.

Although few Amiga companies are talking openly, many have stated or suggested products they are developing for this expansion area. A Commodore spokesperson even suggested a SCSI port would be created with a connector that would be placed in the small section to the left of the machine.

One company already shipping product to Europe is Microbotics, Inc. of Richardson, Texas. Their new MBX 1200 is a Motorola 68881/68882 Floating Point Unit (math co-processor) and has up to 8MB of additional RAM. Promising an increase in floating point operations by as much as 55 times the A1200. They also insist that the 32-bit RAM will increase standard operating speeds by more than 75%. The MBX 1200 has a suggested retail price in the U. S. of $189 with a 14 MHz FPU and 0K memory.

In addition, two other Amiga peripheral suppliers have opted to provide product for the A1200 expansion slot. Great Valley Products and DKB Software are developing expansion devices for the 150-pin connector. Unfortunately, more information was not available at press time.

The expansion bus on the A1200 is a great step forward. In the words of Jerry Robinson of MicroBotics, "The A1200 is ULTRA expandable—even more expandable than an A500. We love it. "

Summary

The Amiga 1200 is a perfect fit for Amiga enthusiasts, artists, and others who want better resolutions, Amiga downward compatibility, and expandability at a reasonable price. At $699.95, the A1200 is an inexpensive way to work with the new, higher resolutions available on an Amiga 4000. With the introduction of both the PCMCIA card (as on the A600) and the 150 pin Local BUS adapter, A1200 users will be able to upgrade their equipment with the faster RAM, processors, SCSI, and more.

With the A1200, CBM has released a nice looking machine with improved engineering and adaptability. This machine not only has the ability to replace the A500 in the hearts of a great many A500 users, but it will also offer an expansive future in Amiga computing.

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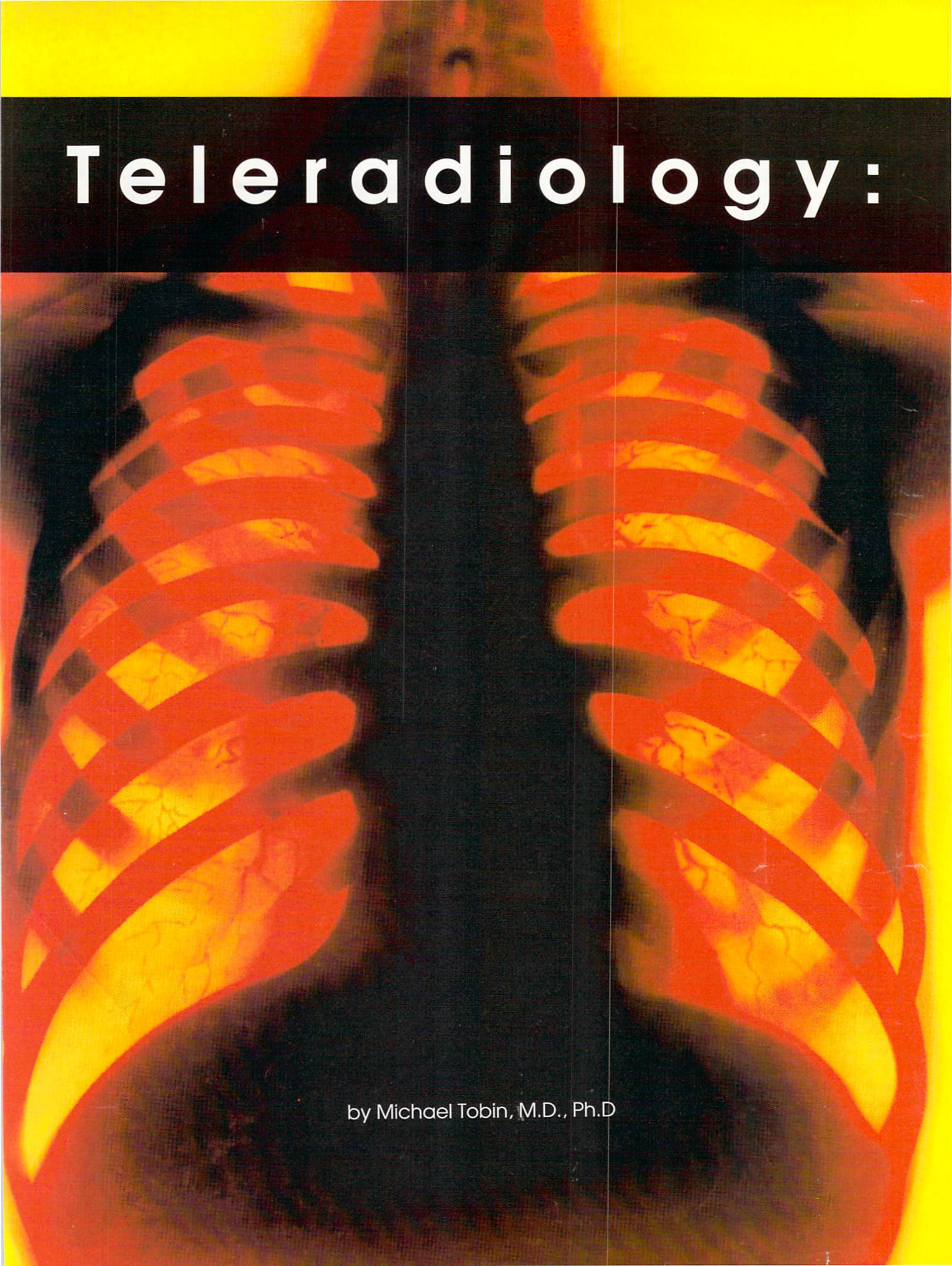
Teleradiology:



by Michael Tobin, M.D., Ph.D

The Amiga in Medicine

Teleradiology—What It Is and What It Isn't

Teleradiology is the process by which diagnostic radiographic images produced at one location are sent to a second location, usually for interpretation. If the second location is elsewhere within the same medical center, closed circuit television (CCTV) can be used. This approach, which is teleradiology only in its broadest sense, is best either for monitoring a study in progress or for consulting on an individual case. Alternatively, use of local area networks (LANs) can allow access of image data from anywhere in the hospital.

If the second location is outside of the medical center, a different approach is typically used. Here, data in digital format is transmitted via a computer modem to a second computer system for interpretation. This is the usual understanding of the term "teleradiology."

Teleradiology is often confused with PACS, which stands for Picture Archiving System. PACS is intended for long-term storage and convenient retrieval of diagnostic medical images. These are stored in digital format on large capacity devices such as Write Once Read Many (WORM) optical drives. A common configuration is for a main viewing area to be located in the Radiology department and multiple substations to be placed strategically throughout the hospital. Ultimately, PACS may replace standard X-ray transparencies which are often stored in countless numbers in huge warehouses. Digital images stored on disks are much more accessible and less easily misplaced.

The connection between PACS and teleradiology is that both require digital images and that images archived on a PACS system can be modemed anywhere in the world. Teleradiology does not, however, require a PACS system. Although there are many actual and potential applications of teleradiology, this article will concentrate mainly on the transmission of medical images in an emergency setting from a hospital to an off-site radiologist for immediate interpretation.

The Clinical Setting for Teleradiology

Because emergencies do not respect the "normal" workday, radiologic imaging is available around the clock. Emergency room physicians and senior medical staff are trained in the interpretation of routine radiographs and CT scans and seldom require the expertise of the radiologist who remains "on call" for special procedures and more difficult cases.

A radiologist may "cover" several hospitals on any given night or weekend. If a scan does require an emergency interpretation, the radiologist traditionally goes to the hospital, reads the films, and then returns home. A more efficient approach would be to have the images sent to our Amiga computers at home for off-site preliminary interpretations. So how does one send an image from hospital to home?

Getting from "A" to "B"

If an image is to be modemed to a computer at home, it must either already be in digital form inside a computer or else digitized and then stored within a computer. CT (computerized tomography) scans are inherently digital because the images are the result of complex mathematical reconstructions of data collected as the tube/detector system scans the patient. The data and images are stored on disk; were a modem (and software!) attached to the CT machine, you could download any image file you needed. The problem would then be one of understanding the proprietary image file format used by each manufacturer.

One solution that might be used would be to capture the video data—as opposed to the "true" image data—by connecting the "video out" from the CT machine to an Amiga with a frame grabber. The quality of the data would then depend on the video display board inside the scanner as well as the capability of the Amiga frame grabber. A real advantage of capturing video data is that we can store the resulting image in a standard Amiga IFF file format without needing to interpret the manufacturer's proprietary file format.

This "video out" approach should work for any imaging modality that routinely produces video images including magnetic resonance (MR) and nuclear medicine (NM). Ultrasound images which are stored on tape in some systems are also amenable to frame capture but image quality may benefit from a time-base corrector (TBC).

But what about radiographs (X-rays) which are, in most, institutions imaged onto transparencies? A third and far simpler approach—albeit one easier to criticize on theoretical grounds—is to digitize the transparency. Indeed, because all imaging modalities routinely output images onto transparencies, this method is universally applicable. As Amiga users, we are now truly on familiar ground. We can use a Panasonic WV1410 black and white video camera for image capture. The light source must be behind the transparency just as if we were viewing a slide. Several frame grabbers are available for the Amiga. The GVP IV24 that I use can digitize an image at a resolution of 768 x 484 with 256 shades of grey. But is it good enough? Let us look at several medical imaging modalities and determine the hardware and software requirements of each.

Teleradiology and Computed Tomography (CT)

The typical scenario is a patient who sustains head trauma in a automobile accident and is brought, unconscious, by ambulance to the hospital at 2 a.m. The emergency room physicians request a head CT scan in order to determine if there has been bleeding into the brain.

A head CT scan may consist of 10 to 12 individual cross-sectional images laser printed onto high-quality transparency film and read on a viewbox which provides rear lighting. As already described, images may look like anatomical "slices" of the brain, but they are, in fact, mathematical reconstructions of X-ray data. Each image is displayed as a 512 x 512 data matrix containing 256 shades of grey which would be sent via modem to the radiologist's computer at home for an immediate or "stat" interpretation.

I think that most radiologists would insist on a 512 x 512 display matrix and at least 256 levels of grey so as not to miss findings. The Amiga graphics display would then need to meet this standard in order to be competitive.

In emergency situations, most radiologists would probably be content with limited manipulation of the transmitted images. Certainly a "zoom" function to hone in on a suspicious area would be helpful as would a contrast control and a way to choose the center for the grey level display. These functions are routinely available while viewing images on a CT scanner console. The abilities to save, delete, send, and receive from within the program are obvious needs.

Teleradiology and Nuclear Medicine

Nuclear medicine is a branch of diagnostic radiology in which a small amount of radioactive material is administered to a patient who is then imaged with a special camera.

Video graphics requirements for nuclear medicine are very modest. Most images occupy 128 x 128 matrices, although for some purposes 256 x 256 matrices are used. For dynamic studies in which images are acquired every two seconds, a 64 x 64 matrix is more appropriate. A grey scale with 256 levels is adequate.

Many nuclear medicine physicians, being the computer people that they are, would like to have every bell and whistle on their home computers. Even in the middle of the night, they would want to enhance their images, overlay one image on another, compare the count density in one area of an image with that in another area of the same image, add images, subtract images, play them in a dynamic sequence, etc. But as the wee morning hours arrive, even the most ardent nuclear physician becomes more realistic and settles for image display with zoom, brightness, and contrast controls. However, I doubt if they would ever truly be content with such limited software functionality given the image processing power they have on-site at the hospital.

Teleradiology and Plain Film Radiography (X-Rays)

Plain film radiography is still the most common of all imaging modalities. Suspected fractures, pneumonias, kidney stones, intestinal obstruction, and catheter placement are just a few of the many indications for X-rays.

As already mentioned, most hospital medical staff are sufficiently comfortable with radiographs to be able to render a preliminary diagnosis. From an image transmission point of view, this indeed is fortunate because the resolution of X-rays is so great that some estimate that a computer matrix of 2k x 2k, and perhaps even 4k x 4k, would be required to capture the detail.

Having emphasized the detail possible with plain film radiography, I would add that most abnormalities are not so subtle. The role of the radiologist is much more an interpretive one rather than a strictly visual one. I would also point out that by using a macro lens on the black and white video (digitizing) camera and focusing on a critical area of the X-ray film, one can achieve a high overall resolution because the 768 x 484 computer matrix is being applied to a relatively small area.

The limitations encountered with X-rays usually relate to the film being too light (underpenetrated) or too dark (overpenetrated) or the patient not able to be optimally positioned for the study. If the quality of the study is high, then the zoom, brightness, contrast, and grey scale level controls recommended for CT scan should be adequate.

Other Imaging Modalities

Ultrasound images, which are produced by the reflection of sound waves by a transducer, have imaging requirements similar to those for CT scans. Because the transducer is hand-held and has gain control and other user-adjustable parameters, ultrasound is much more operator dependent than is computed tomography (CT). The quality of the study itself becomes the limiting factor.

Magnetic Resonance Imaging (MRI) has revolutionized radiology because of its exquisite demonstration of anatomy in multiple planes. Image resolution, at this point in time, is often a surprising 128 x 256 or 192 x 256 matrix size, which is easily handled on any computer system. On the other hand, MR scans are characterized by large numbers of images with each set relating to different magnetic pulse sequences and different imaging planes. Except for certain back injuries that might result in spinal cord compression, few true emergency situations seem to have developed at present, but this may easily change in the future.

Is the Amiga Ready?

In terms of hardware, the answer, I believe, is "yes" to the question above, especially for the lower resolution studies. In terms of software, I'm not so sure.

Now that we have the Supra modem with its 14.4 bits per second transmission rate, our limitation is the telephone line. Until we have high speed digital (ISDN) lines, we will have to look for lossless image compression techniques to speed data transmission.

In terms of frame grabbing, the Panasonic WV1410 black and white still video camera can generate 525 lines of resolution at the center of its field and therefore is adequate for most of the modalities described above. Frame grabbers such as the multi-talented GVP IV24 board can capture an image in a 768 x 484 matrix. This is also adequate if one focuses the camera onto the image itself, which almost never fills its 512 x 512 matrix completely. An interesting alternative to a combination video camera and frame grabber may be the new Sharp JX-320 scanner with a transparency device which almost doubles the cost of the basic unit. I have not had experience with this scanner combination, although ASDG has written a software driver for it.

The grey scale issue is more complicated. While the medical images in my computerized teaching file adequately display pathology using 256 levels of grey, this is a retrospective evaluation. The issue is two-fold. The first relates to how many grey levels an individual can see on a monitor or on hard copy. The second is how many grey levels one needs to perform various types of computer image manipulations. The number of grey scales is often many fewer than the possible number of values in the original matrix from which the image is derived. This particularly true for CT and MR images as described in the endnote to this article. While only prospective studies comparing medical abnormality detection rates using different grey scale levels would have scientific validity, my observation at this point is that 256 grey levels is, in general, adequate for preliminary image interpretation but may not be suitable for all types of computer image manipulation.

As this article goes to press, the Amiga graphics chip set has been upgraded and the first Amiga 4000s are now available. The coming weeks and months will allow evaluation of these exciting new computers for medical image display. For standard Amiga 2000 and 3000 series computers with the old ECS chip set, a 24-bit graphics board (or its equivalent) is necessary to view 256 grey scale images. I have used both GVP's IV24 and Impulse's FireCracker24 graphics boards, and can state that both perform their display functions very well, although the second one does not have frame capture options. I have not as yet had experience with the new 24 (and 32-bit) graphics boards which are based on the Texas Instruments Graphics Array (TIGA) processor chip and which can have image displays of 1k x 1k or higher, and grey scales of 512 levels and potentially even more. These higher resolutions would allow more than one 512 x 512 medical image to be displayed on the same monitor screen without loss of individual image detail. To be most useful in the medical environment, I feel, these boards and the high quality monitors they require, need to handle all Amiga graphics modes seamlessly and require only one monitor for the whole system.

What about software? Image-processing software up to this point has largely related either to image format conversion or to artistic modifications of images, although *Art Department Professional* from ASDG does have image sharpening and smoothing functions. Some of the image-processing functions conceivable in a medical environment are described in the nuclear medicine section above. While most of these functions are useful to nuclear medicine personnel, control (by mouse?) of zoom, contrast, and grey scale level would be relevant to all and may be regarded as a minimum. Zoom makes most sense if the data stored by the computer is more than is being displayed on the monitor—otherwise, one merely gets a larger, more blurry image.

The Bottom Line?

There will probably always be cases in which the radiologist will need to see the scan face-to-face. The Amiga with 24-bit frame capture and display board(s), a high-speed modem, a decent size hard disk, and maybe Art Department Professional, deserves long-term testing. Because the hospital at which I currently work has 24-hour emergency coverage provided by resident physicians, I have not yet set up an Amiga-based image transmission system at this facility. Nonetheless, I have received telephone calls from individuals interested in using Amigas for this purpose. I hope that this article will be of interest to them as well as others interested in professional applications of the Amiga.

Because medical imaging is so fascinating, I thought I might include slightly more detail for those interested.

As already mentioned, CT scans are displayed as 512x512 matrices with 256 levels of grey. However, each element in the matrix can, in fact, have any value from 0 to 4095 (12 bits deep). These values reflect the attenuation of X-rays by structures in the body. Bone, which "stops" or attenuates X-rays the most, has a high positive number, while air has the lowest number. On a scale of 0 to 4095, water would be 1024. Because most tissues in the body have an attenuation value similar to that of water, the scale was rearranged to give water a value of 0. Air would then have a CT number of -1024 while the densest bone would have a CT number near the upper end of +3071. CT numbers are often referred to as Hounsfield Units, after G. N. Hounsfield, the inventor of CT.

Magnetic Resonance (MR) images are felt to provide anatomic information superior to that of CT, especially in the brain, spine, soft tissues, and joints (such as the knees). Understanding why MR images with matrices of 192 x 256 can show so much detailed information requires knowledge of magnetic resonance theory, a task well beyond the scope of this article. Suffice it to say that MR has excellent contrast resolution, which means that different tissues in the body can be made to appear different from each other, provided that the appropriate MR pulse sequences are selected. Also, by using special body "coils" which limit our field of view, we can increase our overall spatial resolution by applying our imaging matrix to a small area—much like the photographer who fills his lens with a single object. Other factors, such as slice thickness, also affect image quality. The bottom line is that increasing the matrix size is usually a relatively inefficient way of improving image quality, especially when one considers the increased imaging time it necessitates. In passing, I would note that the matrix elements in an MR image are 16 bits deep, and their values are related to proton spin relaxation times which vary according to body tissue. As with CT, MR images are displayed in 256 levels of grey whether on a monitor or on a transparency.

For those interested in learning more about medical imaging, I would recommend T.S. Curry, et al., *Christensen's Introduction to the Physics of Diagnostic Radiology, 4th ed.* and also H. Smith and F. N. Ranallo, *A Non-Mathematical Approach to Basic MRI.*

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cli directory

by
Keith Cameron

Commodities, Part 2

Last month, we examined three programs in the Commodities drawer of the Tools directory on the Extras disk. This month, we will take a close look at the three remaining programs as well as the concept of assigning priorities. We will begin by looking at BLANKER.

I advocated in a couple of my first articles the use of some type of screen blanker. If you tend to leave your computer on and unattended for extended periods of time, there is a good chance that the image on the screen can actually burn into the monitor. At a place where I worked several years ago, there were about a dozen IBMs lining the walls of a moderately sized room. These machines were normally turned on early in the morning and left running all day, and sometimes inadvertently overnight as well. In normal light, it was easy to see the main menu of these machines even when they were off, for the image of the menu had burned into each monitor. A screen blanker would have prevented this.

In the past, most Amiga owners who used screen blankers usually acquired them from the public domain or similar sources. However, with the latest version of AmigaDOS, Commodore has provided BLANKER.

BLANKER is quite versatile and allows the user to set the time, in seconds, that it will take for the screen to go blank after the mouse and keyboard have not been used. The default period is 60 seconds, but it can be adjusted anywhere from 1 second to 9,999 seconds. What I don't like about this screen blanker is that the screen actually blanks and appears to be off. Some screen blankers show a moving asteroid field, for example, or perhaps a clock that moves about the screen in a random manner, allowing you to easily tell that the computer is on. Sometimes I'll leave the room to get a drink and then get involved in another project elsewhere in the house. Upon passing my computer room, a quick glance at the moving asteroid field or other designs alerts me that my computer is still on. Personally, I much prefer this feature.

To use BLANKER, you need to type BLANKER on a command line, then hit a carriage return. A window will then appear, and you can set the time in the gadget that is available. You can also set the time from the command line by typing something like this:

```
BLANKER SECONDS=120 <RETURN>
```

If you do not specify a time, the default (60 seconds) will take effect.

To exit BLANKER, you simply hit the Ctrl-E combination. I prefer to use the RUN command with this program so that control reverts to my Shell window. If you do not use RUN, you must exit the program to return control to your Shell window.

As with most programs, there are switches available for BLANKER. If you prefer that the program window not appear, you can use the "CX_POPUP=NO" switch discussed in last month's column. BLANKER also has a hot key switch, which will allow you to call up the program window at the touch of a key. An example of this switch appears in the following command line:

```
BLANKER SECONDS=90 CX_POPKEY=F1 <RETURN>
```

Now when you hit the function key indicated in the above command line, the BLANKER window will appear. Whether or not this function is useful depends on you; personally, I don't find it to be that useful.

NOCAPSLOCK is a small program that temporarily disables the Caps Lock key. As with most Commodities programs, Ctrl-E will exit the program. When executed, lower case letters will appear on the screen even though the Caps Lock key has been activated and the red light on the key remains on. As with other Commodities Exchange programs, if RUN is not used to execute the program, control does not revert to the Shell window.

At first, I thought this was a rather useless program. But when I considered all of those times that I accidentally hit the Caps Lock key rather than the Left Shift key or the letter A, I began to see its importance. There have been countless times that I have typed a line or two in upper case letters before realizing my mistake. By including NOCAPSLOCK in your startup-sequence, this problem can be eliminated. You can still produce upper case letters when needed by depressing the Shift keys.

The final program I want to examine in the Commodities directory is CLICKTOFRONT. I find this to be a more useful program than NOCAPSLOCK. CLICKTOFRONT allows the user to double-click on a window and bring it to the front of the screen. This can sometimes be quicker and more effective than using the depth gadget, especially if several windows are open.

Since double-clicking is used to open icon-driven programs, such double-clicking could result in the user inadvertently opening a program rather than simply bringing a window to the front. To avoid this, Commodore-Amiga has made it possible to use a qualifier with CLICKTOFRONT. The four qualifiers available are LAlt (for the Left Alt key), RAlt (for the Right Alt key), Control (for the Ctrl key), and None (for no key). The default is LAlt. To include a qualifier other than the default, you will need to type something like the following:

```
CLICKTOFRONT QUALIFIER=RALT <RETURN>
```

Executing the above command line will make the Right Alt key the qualifier. Thus, you would need to hold down the Right Alt key while double-clicking on a window in order to bring it to the front of the screen.

Next, we need to examine how to assign priorities to the various programs in the Commodities directory. Admittedly, the priority of a process is a concept which I don't fully understand, but in relation to just these few programs it is easy to grasp.

First of all, a priority is the relative importance of a process. Processes can be assigned priorities ranging from -128 to 127, but all of my resources recommend that only numbers from 0 to 10 be used. Most processes have a priority of 0.

Different priorities become important to the Amiga because of its ability to multitask. Since several processes may be running simultaneously, the computer may need to know which is considered more, or most, important. Processes with higher priority numbers are given the most importance; thus, a process with a priority of four is given precedence over a process with a priority of one.

Perhaps the best way to explain how priorities work is by demonstrating them. All six programs in the Commodities directory we have been examining can be assigned priorities. The common switch for each is "CX_PRIORITY=N" where the "N" equals the priority number you wish to use. If, for example, you wanted to assign a priority level of three to AUTOPOINT, you would type

```
AUTOPOINT CX_PRIORITY=3 <RETURN>
```

Now, consider this. Suppose you have FKEY and IHELP running simultaneously. If you leave the defaults in place for both programs, you have the F1 key executing the STATUS command for FKEY and the CYCLE operation for IHELP. How does the computer know which one you want it to do when you hit the F1 key?

That is where setting priorities comes in. The higher the number you give to a process, the higher the priority it has. If you had assigned no priority to either IHELP or FKEY in the situation described in the above paragraph, you would find that hitting the F1 key would alternate between the two programs. The first time you hit F1, you would execute IHELP, for example, while the next time you hit F1 you would execute FKEY. Additionally, if the POPUP switch had not been activated for FKEY, the FKEY program window would also appear. I have also experienced a different situation. At times, I have found that whichever program is run first will have priority over the other. I'm still working on this. If anyone has any input on this subject, please write me.

Anyway, to avoid this problem, you simply need to assign different priority ratings to the programs. If you were to assign a priority level of two to IHELP and then a priority level of five to FKEY, anytime you hit F1 the FKEY function would be executed.

Finally, these priority settings are relative only to the six Commodities Exchange programs. That is, they will not affect the relationship these programs have with other applications outside of the Commodities directory.

I have advocated using the RUN command to execute these programs in order to have control returned to your Shell window. Less experienced Shell users may become concerned after doing this for awhile, for it may appear that doing so eliminates any way of exiting the programs. Without using the RUN command, you simply hit the Ctrl-E key combination to exit or kill programs. When using the RUN command, you cannot use this method of exit.

Instead, to exit programs executed using the RUN command, you will find it necessary to use the BREAK command. At this time, I do not intend to begin a new discussion of more commands, so I will discuss BREAK and STATUS solely in relation to exiting programs.

Say, for example, that you have started both FKEY and IHELP using the RUN command. Full control has returned to your Shell window. After a while, you decide you want to exit one or both of these programs. First, type STATUS in your Shell window and execute it. On my computer, the following then appears:

```
Process 1: Loaded as command: status

Process 2: Loaded as command: conclip

Process 3: Loaded as command: Workbench

Process 4: Loaded as command: ihelp

Process 5: Loaded as command: fkey
```

We are concerned only with processes 4 and 5, as these concern the programs we wish to exit. Now that I know what process number each program has, I can use the BREAK command to exit them. To exit IHELP, I will type the following in my Shell window:

```
BREAK 4 <RETURN>
```

To exit FKEY, I'll do the same, substituting 5 for 4 in the above command line. That's all there is to it.

Although the programs in the Commodities directory can be run both from the Shell and from the Workbench, Shell users will probably benefit more. These programs tend to keep your hands located more on the keyboard and away from the mouse. This, in turn, should help you use your time and computer more efficiently.

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A look at
24-bit Libraries

by R. Shamms Mortier

What few artists and animators outside of the Amiga community realize is that the Amiga has been a catalyst—it has generated software which allows us to produce better computer graphics than any other micro platform, and whole new concepts and tools have been added to our repertoire. Take ANIMbrushes, for instance. ANIMbrushes allow us to create pictures and animated segments that could not be achieved without the use of this Amiga concept. And then there's "clip-art." Clip-art is a concept that goes far back into the history of traditional graphic design. The reason for the birth of clip-art is both quality and economy. Traditional clip-art is created by top-of-the-line illustrators, and is sold in bulk packages to people who design printed matter. It would cost several hundreds of dollars to purchase any one of these illustrations separately, and yet a thick collection of clip-art can be had for as little as $20. All of the drawings are "copyright free," meaning that you can use them in any combination for only the initial cost. The downside of using clip-art is that all of your competitors may also use the same attractive illustrations for different purposes, leading to a confusion of symbolic orientation and a glut of the same images in the marketplace. A way to get around this is to "customize" it yourself, to alter it or emphasize elements within it. This works for video libraries as well as it does for desktop publishing art. Though image libraries, even 24-bit ones, are not unique to the Amiga, I think the way that we use them has opened new creative pathways for all computer based artists and art.

Desktop publishing platforms and businesses use a wealth of clip-art, mostly in a "structured" format. This means that the "drawings" are not pictures as such, but are saved in libraries as linear "directions" (vectors). This makes the saved art small and at the same time negates the horrid "jaggies" that can destroy the look of a drawing or illustration. Structured graphics can be enlarged to any size without calling attention to the jaggedness of certain oblique lines. This is especially true when they are output to a high-resolution printer. Structured pictures are just starting to find their way to display screens, as standard computer and CRT screens have a far lower perceived resolution then does printer output. In other words, drawings perceived on a computer RGB screen or on your NTSC television are generally not as sharp as those that are printed to paper.

Color makes a big difference in the way that we perceive "reality" and "sharpness" in the world. Generally, the larger the quantity of colors available to the eye in a view, the more perceived depth an

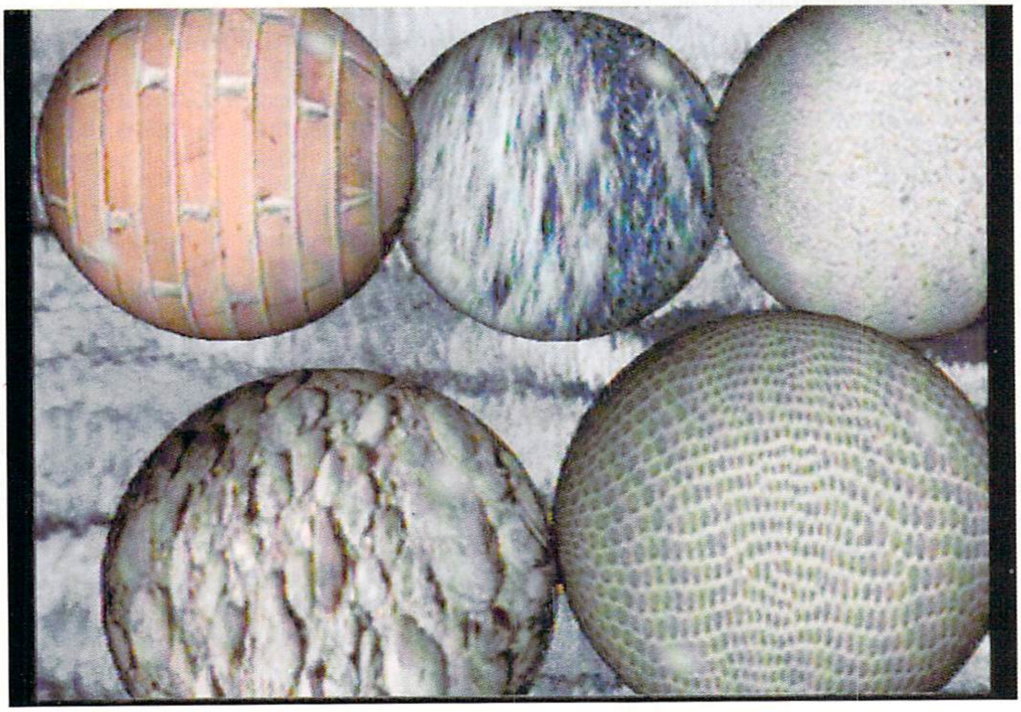

Figure 1-*Texture City*. A group of spheres mapped with Texture City textures, left to right and top to bottom: Bricks, Badger Fur, Beach Sand, Pebbles, and Lizard Skin. The rendering engine used was Aladdin 4D from Adspec Programming.

image in that view will display. That's why even a simple RGB screen in, let's say, a 640 x 400 pixel dimension looks very different when a 24-bit picture is displayed versus a normal 16-color hi-res picture. When the palette is limited to only 16 colors, there's not much color left for subtle shading. 24-bit palettes, on the other hand, can contain over 16,000,000 separate colors, so many can be devoted to subtle changes from light to dark and back again. The human eye can perceive (or so the experts say) only about 1,000,000 separate "colors," so in a palette with a potential of 16,000,000, many of the "colors" are smeared by our analog vision into smooth ranges of shades and blends. A device—such as an Amiga 24-bit board or peripheral unit like DCTV—can be used to display far more color then a vanilla Amiga display can handle. Those that are true RGB display devices can actually show all of the 24 bits of color as separate bits on the screen, while those that work in NTSC/composite mode (as does DCTV) show the colors as less discrete.

Enter the Amiga 24-bit library collections. These are disks of pictures that are designed for the Amiga artist and animator the same way that traditional "clip-art" was designed (and still is) for those interested in hard copy use (printed matter). Amiga 24-bit libraries are used in two general ways:

1. As backgrounds which the designer may use to scroll credit text across, use as a base for stable video or 35mm slide text, and/or use as backdrops for animated renderings.

2. As color "textures" which can be "wrapped" around any 3-D object that accepts 24-bit color wraps.

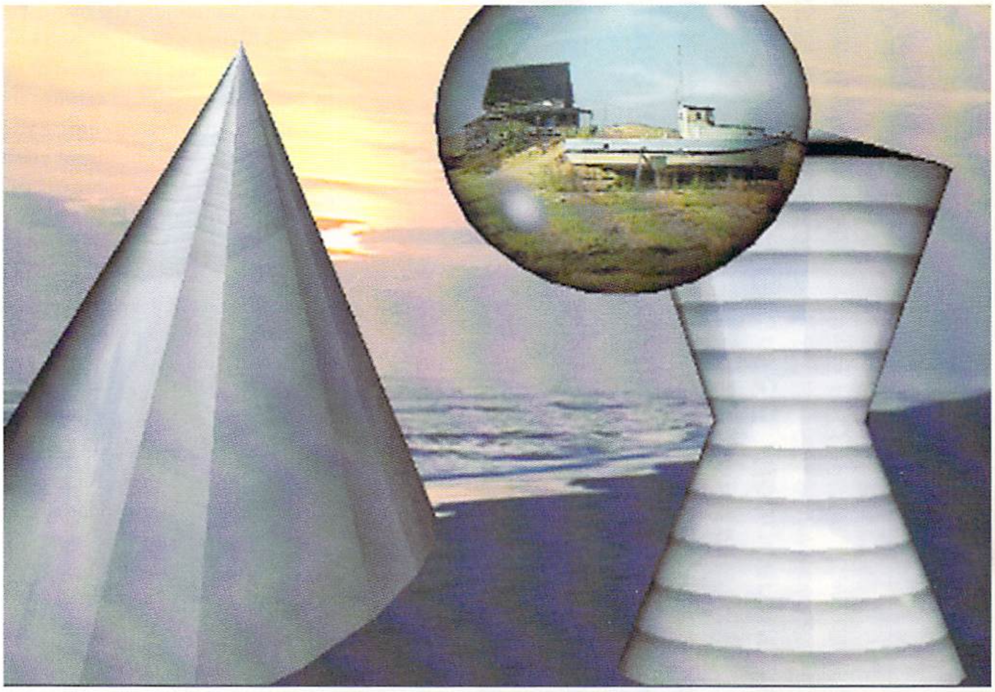

Figure 2-*Pixel Perfect.* We have rendered a strange scene with the super quality JPEGs from the Pixel Perfect library. Again, the renderer was Aladdin 4D.

Amiga artists/animators need both of these options, and many times use both in a single animated or still sequence. Of course, any desktop publishing program that can accept 24-bit graphics—either for grayscale or color output—can also use Amiga 24-bit color imagery as an element in the design of a piece of hard copy. 24-bit files have far more "information" than normal 16-color hi-res files, so pictures are sharper, contain more perceived detail, and generally are more pleasing to the eye, whether the output is video or printer directed. The Amiga is blessed with many 24-bit graphic libraries. There are two such packages that I would like to discuss here, because they are superlative in their own right, and also because they point out the distinctive video uses that such libraries target.

Texture City Pro 60

Using the JPEG compression modification, a massive amount of 24-bit imagery can be stored in a small space. This collection contains three "installer" disks and 10 image disks. It has its own "decompressor" for those who do not operate with ASDG's *ADPro* or BlackBelt's *Imagemaster* software. The "installer" places the JPEG decompressor and a HAM file viewer in your targeted location. The decompressor is designed to batch decompress any of the images you find a use for, and the images themselves need not be decompressed to hard disk first, but may remain in their compressed state on floppy till needed. The viewer actually places a HAM replica of the 24-bit image on your hard disk in a viewable library. You've got to have a good bit of RAM to work the decompressor, as it takes a safe allocation of about 2MB of RAM over and above anything else you're running. Though it's nice having the decompressor at hand, I would suggest you utilize ADPro or Imagemaster for this purpose.

This collection has some nice background screens (nine "scenic" displays), but its main use is as a texture applicator for your 3-D work. True, the same graphics used for textures can be used as stable video and 35mm slide backgrounds, but I generally find this to be too busy for readable clarity. I prefer instead to use smooth gradiated colors or well-chosen photographic imagery for this purpose. I suppose some of you might prefer a business slide of data against a "Cobra Snakeskin" backdrop, and I gladly bow to your sense of creativity if that is your choice. Some of the more conservative wood grain screens, however, might look very nice with data superimposed upon them. It is also suggested that you investigate using ADPro or Imagemaster to translate your texture JPEGs into standard Amiga 32-color, lo-res files before wrapping them upon a 3-D object. In most situations, you do not need to use 24-bit art as a wrap, since it consumes so much memory, and several used in the same picture can severely overload your Amiga. 32-color art works just fine for most animations except in severe closeups (fly-thrus, etc.), and you can hold many 32-color wraps in memory at the same time.

Just look at the rich collection of potential texture wraps: three Animal Skins, two Earth backdrops, six EFX, two Granites, five Marbles, eight Metals, six Rocks, one Space (NASA Earth shot), four Stones, nine Textiles, and three Woods. Figure 1 shows examples of some of these textures wrapped and rendered with *Aladdin 4D* from Adspec Programming.

Pixel Perfect 24: First Edition

I have never seen a collection of 24-bit images with this much attention to detail and quality. Just to demonstrate this developer's concern for quality and perfection, Fred Hurteau (the captain of Digital Designs) found one of the images not to his liking after he had sent the collection to me, went in to retouch it, and rushed me a substitute. What he corrected was an area of a single picture that I would not have noticed, nor would 99.9 percent of Amiga users. Fred has been in the Amiga art business since 1986. He started off, like many of us did, with a C-64, and eventually graduated to an Amiga 1000. He Gamma tested for the NewTek Toaster as well. I'm telling you all this because his dedication shows in the products he creates.

As much as *Texture City* is seen by me as best filling the texture wrapping niche, *Pixel Perfect 24* is a qualitative choice when it comes to backgrounds. The manual also states that another use is in "reflection mapping," and I would agree. Reflection mapping means that a picture is wrapped or targeted to a surface that is supposed to show it reflecting a scene in the distance, like a spinning metallic cube that reflects a sunrise scene. There are a small number of graphics (some beautiful marble and tiled textures) in this package that could act as texture maps (especially if manipulated and/or self cloned for effect with a 24-bit program), but I would suggest that these images all remain in their 24-bit state for any use—they're just too fine tuned to use as HAM or other formats. This is substantiated by the fact that so little is charged for the HAM previews, though in their 3/4 size they are not as useful as full-screen HAMs would be. I have to tell you though, that when I saw the quality displayed even by the HAM shots, I was sold on the package. I used my ColorBurst to see them in their full 24-bit glory, and have also rendered them to DCTV, where they shine like gold.

More then anything else, use this package to add sparkle and wonder to your animation backgrounds for video and your 35mm slide backdrops. The scenes of nature, like September Lake, Ocean Sunrise(s), and Mediterranean Harbor, are exquisite. There is also a wide range of abstract slide backgrounds just right for your 35mm work, including banners, dollar elements, drapes, and various slatted patterns. The manual that accompanies this set is the best I've seen of its type. Not only is it super clear and quality printed, it also sports a Special Applications and Tips section that tells you how to apply the pictures in Video Toaster, DCTV, desktop publishing, 24-bit display boards, and other useful applications. Pixel Perfect also has its own decompression utility, though again, I would advise purchasing ADPro and/or Imagemaster to utilize this library to the fullest. For example, both ADPro and Imagemaster can transform a 24-bit color file into a 16-color hi-res file by applying special dithering techniques that make you think you are seeing many more than 16 colors.

As video clip-art, whether used as entire screens or as segmented brushes, this collection offers the Amiga videographic artist the absolute highest standard in image libraries. See Figure 2 for an example of some of the graphics used in this package as rendered with Aladdin 4D.

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ROOMERS

by The Bandito

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Commodore Races Ahead

The A4000 was only the first in a series of new Amigas. Next up is the Amiga 1200, designed to be the first low-cost AGA machine. The word the Bandito hears from West Chester is that they're using a 68020 as the CPU, running at 14MHz. The 1200 looks like a stretched A600; it includes the numeric keypad once again, and a 32-bit expansion slot. There's room inside the case for a 2.5" hard drive (more on that later). The A1200 is maybe 4 or 5 times as fast as an A600/A500. And of course you get AmigaDOS 3.0, 2MB of Chip RAM capability, and the new 512K ROMs.

The 2.5" hard drive may surprise you. Seagate issued a press release saying that Commodore is buying ST9144 drives (2.5") for the A600s. The Bandito noted with interest that these drives format to over 120MB. For the A600? Hah. More likely, these will be going in the Amiga 1200s.

The Bandito still hadn't heard the retail price for the A1200, but it looks like less than $1000 is a good bet. Maybe $999 with the hard drive; that would be a very good deal indeed. Of course, your next question is: what are they going to do with the A600? The A500? The A2000? The A3000? The Bandito expects these answers to unfold over the coming months. A lot of the planning is still being argued at Commodore; much depends on the public acceptance—read "sales"—of the new AGA machines, and precisely where the price points end up. But here's what looks logical to the Bandito: The A600 at the low end, the A500 disappearing entirely, the A1200 anchoring the under-$1000 price point, and a new A4000/030, containing a 25MHz 68030 instead of a 68040, replacing the A2000 at a price point of about $2500 list. Eventually, the A1200 will get cheaper and the A600 will disappear, unless it turns out to be a hot seller at $299 or below; it may replace the C-64 if it gets cheaper. Then, at the top of the line, the A4000T. If priced in the tradition of the A3000T, it will be far more expensive than it should be.

This lineup may well be in place by the summertime or fall. There are some interesting implications here; what happens to the Video Toaster when there's no more A2000? NewTek had better get busy and get their new board design or the stand-alone Toaster ready for when the A2000 disappears. But we can expect that to happen; NewTek will finally have a real incentive to get a non-A2000 Toaster out the door. At the same time, we may see some improvements in the Toaster software—possibly even in the hardware—to take advantage of the some of the new AGA capabilities.

Of course, Commodore denies that the A1200 means goodbye for the A600 or the A2000. They didn't mention the A500, though. The Bandito suspects that the A600 is priced low enough that it will survive, assuming that it sells well. The A2000 may be kept around just to serve as a Toaster holder, until NewTek comes up with another solution. But other than that, it's pretty obvious that the A2000 is too old, slow, expensive, and underpowered to compete with the latest Amigas.

So now what we're missing is the mid-range machine, the true replacement for the A2000. The A4000 takes over for the A3000 at the high end, and the upcoming A4000T will solidify that position. The Bandito, combing through some of the electromagnetic leakage from West Chester computers, has determined that there's a high probability that we may see a version of the A4000 with a 68030 in place of the 68040; retail pricing in the mid $2000s. After all, why bend new sheet metal?

The A1200 may seem somewhat limited for expansion possibilities. But if you remember, that's what people said about the A500 when it was introduced, and look what you can do with it. The Bandito expects that we'll see a full range of expansion options for the A1200, including some sort of card cage where you can plug in Zorro cards if you want to. Of course, we'll see accelerators and hard drives leading the way in the A1200 add-on market. With an accelerator and a sizable hard drive, the A1200 will be a terrific animation workstation.

Startling as it may seem, Commodore has given us some glimpses of the future even beyond this new AGA lineup. The next generation in graphics is being worked on now, and it will debut sometime in 1994. Amigas based on these new chips, which will reportedly offer true 24-bit in a variety of resolutions, will take their place at the high end of the product line, while AGA Amigas will hold on to the low end of the line. The new graphics will coincide with a new release of system software that will provide fully retargetable graphics with a host of other features.

Power Up to A4000?

Speculation is already rife over the future of the A2000 and A3000, as their owners watch the resale value of their computers plummet and wonder if they can somehow get the new graphics capability for their old machines. Until we see a third-party add-on board, the best hope lies with one of Commodore's perennial favorite marketing ideas, the Power Up plan. Trade in your A3000 plus some money and get yourself a shiny new A4000 at a big discount. The Bandito hears that the next Power Up program is indeed being devised in secretive marketing meetings.

The Power Up program won't take place until after Commodore has skimmed the cream of the early adopters. When the warehouses have lots of A4000s, say sometime in March or April 1993, that's when a Power Up program is likely. Although if A4000 sales continue to be as strong as they have been initially, Commodore might delay the Power Up program until the summer. Of course, Commodore hasn't decided anything yet, and they won't until after Christmas. How much will it cost? You'll have to wait until they actually announce it; that detail is left until the last moment.

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More A4000 News

Initial reports from the retailers indicate that A4000s are being snapped up by eager Amiga owners. It's a little early to tell if non-Amiga fans will get the message about the A4000, but Commodore is conducting an advertising campaign in PC magazines to try to get their attention. We'll have to see what the sales picture looks like after all the rich Amiga owners have bought their A4000s.

The next development in the A4000 line is bigger and better. An A4000 tower version will be out in the first quarter of 1993, according to the Bandito's sources. The best part is more space: more slots, more drive bays, a bigger power supply. There's even a chance we could see a 33MHz 68040 in it instead of the 25MHz chip in the standard A4000. The tower computer will likely be popular with video and multimedia producers who need that extra room, what with TBC cards, vectorscope cards, video cards, massive hard drives, and the like.

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Commodore has promised that it will address the one shortcoming of the A4000, its Achilles heel: the built-in IDE interface. While the transfer speed is fine for most hard drives, if you want to hook up multiple devices you really need SCSI. And the latest generation of hard drives really needs the power of Fast SCSI to get some astounding data transfer rates—how does 10MB per second grab you? Commodore already realizes this shortcoming, and has promised that future A4000s will have a built-in SCSI interface instead of IDE. Commodore has announced an A3090 SCSI card that should offer the fastest SCSI available on any computer; it should be shipping in the first quarter.

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CD Wars

The Bandito has been watching the CD-ROM battle with some fascination. Mostly, this has been a battle of PR so far, since there's little CD-ROM hardware on the market. But game magazines continue to gush about what future CD-ROM titles will look like, and companies continue to tout their CD-ROM efforts, even though if you've ever had the chance to look at these things in person you have to concentrate to stay awake. For those systems that are already on the market, like CD-I and CDTV, only a company looking for a big tax write-off could be pleased with the sales.

So now the CD-ROM mavens are all excited about Sega and Nintendo. Well, Nintendo has fired an astonishing salvo into the battle: They've announced that they have killed their CD-ROM unit for the time being. They say that it's not good enough with 16-bit technology to really sell well, and they're going to wait for 32-bit videogames before they put out a CD-ROM unit. This surprising move is probably based on Sega's disappointing CD-ROM sales in Japan; Nintendo figures they can let Sega prepare the market for them by wasting a lot of money on marketing, then Nintendo can move in with better hardware and clean up.

So we are still waiting for someone to deliver some hardware that actually fulfills the promises made about CD-ROM. The

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tough part really isn't the hardware, it's the software. To sell the hardware, the software has to offer something new and different, something compelling enough to justify the expense of the hardware. More of the same game doesn't cut it.

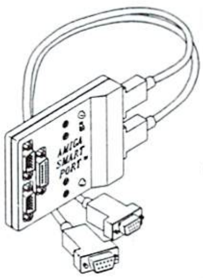
People bought Genesis and SNES systems because they were qualitatively better than 8-bit NES. Better graphics, better sound, the potential for better gameplay because of increased processor power and memory. Just adding a CD-ROM drive to one of those doesn't give you any better graphics, just more of them. Perhaps if the added cost were $100, they would sell. But at $400, it's not worth it.

Before any of these CD-ROM systems do well in the marketplace, two things have to happen. First, the price point has to be lower. And second, there has to be software that you can't get any other way, and it's got to be very cool. This is why CDTV hasn't done anything; the hardware and software don't really offer anything much different than what you can get with your existing computer.

CDTV Dreams

So maybe the answer lies in a new machine, along with some amazing software to make that hardware sing. Here's the Bandito's dream for CDTV II: combine an AGA chip set, a double-speed CD-ROM drive, a 16MHz 68030, and 2MB of RAM. The only problem is the price point; this baby would be difficult to sell for less than $1200. But you could sure put out some very nice high speed animations. Full-motion video? Not a problem if you've got some compression. The trick would be to find and fund some savvy software developers to create some really different new games, exciting interactive databases, and the like. You'd have to throw some real money at it, and be prepared for some big failures. You only get the really neat new titles if you're prepared to take some big chances.

Will Commodore go all the way with CDTV II? Or will they settle for something pretty much the same as the current model, only a little cheaper to produce? Stay tuned; the Bandito will bring you the latest data as it's invented at Commodore.



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Video Games

The Bandito hears that video game sales for the Genesis and the SNES haven't been as stellar as expected this year. Could be the economy, could be the games aren't as good, or maybe the kids are just looking for something else to do these days. Or maybe kids have found out that computer games are better; computer game sales have grown substantially in the past year.

Sega and Nintendo plan to slug it out with multimillion dollar ad budgets in order to bring the sales curve back on track. And they're exploring other ways to expand their market, such as turning those video games into home computers.

Nintendo has come out with a Super NES paint program called Mario Paint that includes a mouse. This software combines animation, paint, and music capabilities for junior multimedia producers. Most interesting to the Bandito is the amount of promotion that it's getting from Nintendo—massive TV advertising. Why is Nintendo promoting it so heavily? Perhaps because they want to get that mouse into everyone's hands, and turn their Super NES into a home computer where Nintendo controls the entire software market? Dream on. The Bandito says the effort is doomed to failure. When people want to compute, they want a computer, not a game machine.

It's clear that the household of the future won't have just one computer; it'll have dozens or hundreds of them. A CPU (or more than one) in everything that runs on electricity. Each task has a computer. If you want to play games, use the game machine. If you want to work, use the computer. Sure, you'll always be able to play games on the computer, since it's a general-purpose device. But the dedicated game machine isn't about to go away. Neither are games on the computer; they both have their place.

The Bandito will leave you with one more chilling rumor: it seems that Nintendo has been holding quiet discussions with Microsoft over the possibility of using a version of Windows in a future game machine...

AGA Games

Will we see games for the new AGA standard? The Bandito hears that Psygnosis, among others, may be thinking about it. The most likely scenario is that some companies will make 320 x 200 x 256 color versions of their software available to AGA Amiga owners. It's actually relatively easy, from

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what the Bandito hears. Most MS-DOS games are already in that mode, so porting it to the Amiga is even easier than doing a standard Amiga port. But the real question is: are we going to be seeing many more Amiga games?

Mac entertainment software is now outselling Amiga entertainment software in the U.S., according to the latest SPA figures. A number of companies are looking at that and saying "Why bother to do Amiga conversions unless it's easy?" And some of the latest entertainment software, the games that require fast computers and megabytes of disk space, are definitely *not* easy to port to the Amiga. Most of the Amiga game market is in Europe, and it's still a 1MB, one floppy system, for the most part. So many of the more complex titles may never get converted to the Amiga, since the market just isn't large enough to justify the effort.

But if AGA Amigas sell well, that may change the equation. Suddenly, moving the graphics over is quite easy; no conversion to 32 colors necessary. That makes it much less expensive to convert games. Of course, the market is quite small right now, but if Commodore can sell a lot of AGA Amigas, that could change rapidly.

Some companies think those SPA numbers are suspect; a number of entertainment software publishers are not in the SPA, which therefore doesn't count their sales. For instance, entertainment giant Electronic Arts has pulled out of SPA, stating that it just doesn't do much for them any more. That's true; the SPA is more concerned with Lotus and Microsoft, who not coincidentally happen to provide most of the funding for the SPA. The SPA doesn't do squat for entertainment software piracy; they think busting 14-year-olds would be bad PR. And aside from anti-piracy campaigns and handing out some awards that everybody ignores, what does the SPA do, anyway? Not much.

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AGA Paint Wars

The first paint programs to take advantage of AGA are on their way, and may even be out by the time you read this. First off the blocks is a new version of *DPaint IV* with full support for AGA modes. This shows that someone at EA is on the ball; for the past few years, they've been behind on Amiga paint programs technology. Now they're leading the pack, and they'll be a tough act to follow.

But they *are* being followed, by none other than the graphics gurus at Digital Creations. A new paint program from Digital Creations called *Brilliance* uses full AGA modes; it offers many of the features of the popular DCTV paint program. One of Brilliance's claims to fame is that it's written in assembly language, which should give it zippy performance even on the A1200.

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But these aren't the only combatants. The Bandito has heard of at least three other paint programs that will offer AGA support by the fall. It looks like there'll be plenty of competition for your paint program dollar. So the Paint Wars escalate all over again on a new battlefield that's 24 bits deep. This battle is merely a skirmish, though, in the larger battle that the Amiga is waging: the battle to become the premier computer platform for graphics.

The Amiga once was the undisputed graphics powerhouse, back in 1985. But since that time, its leadership has been eroded by a steady advance in resolution by Macintoshes and PCs, as well as some excellent graphics programs for those platforms. For a while, the Amiga had the only 3-D graphics packages on any platform, and led in that arena for a long time. But now 3-D software is becoming very competitive on the Macintosh; there's even some good, though incredibly expensive, packages on the PC. However, the new AGA graphics capability and the fast animation of the A4000 means that the Amiga can once again offer the best hardware at the best price. Once the software catches up to these new features, the Amiga will offer clear graphics advantages over all other computers.

Editor's Note: Although The Bandito's column was submitted just prior to press time, the facts and features on the new Amiga 1200 are not consistent with the official pre-release material we have received from Commodore for this issue. We have left the Bandito's comments unedited with this new information to demonstrate how products do change. We underscore that The Bandito's column is a combination of whispers in the marketplace. To read about the planned features of the new Amiga 1200, please see page 48 in this issue.

PSST!

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THE VIDEO SLOT!

by Frank McMahon

Last month we discussed some programs and options that boosted productivity of the Video Toaster. This month we'll take a look at some additional products that are new versions of established programs for the Video Toaster system including a new version of the background generator *Pro Fills*, a *LightWave* version of the 3-D object *Motion Man*, and 18 new *Broadcast Fonts*.

Pro Fills Volume 2

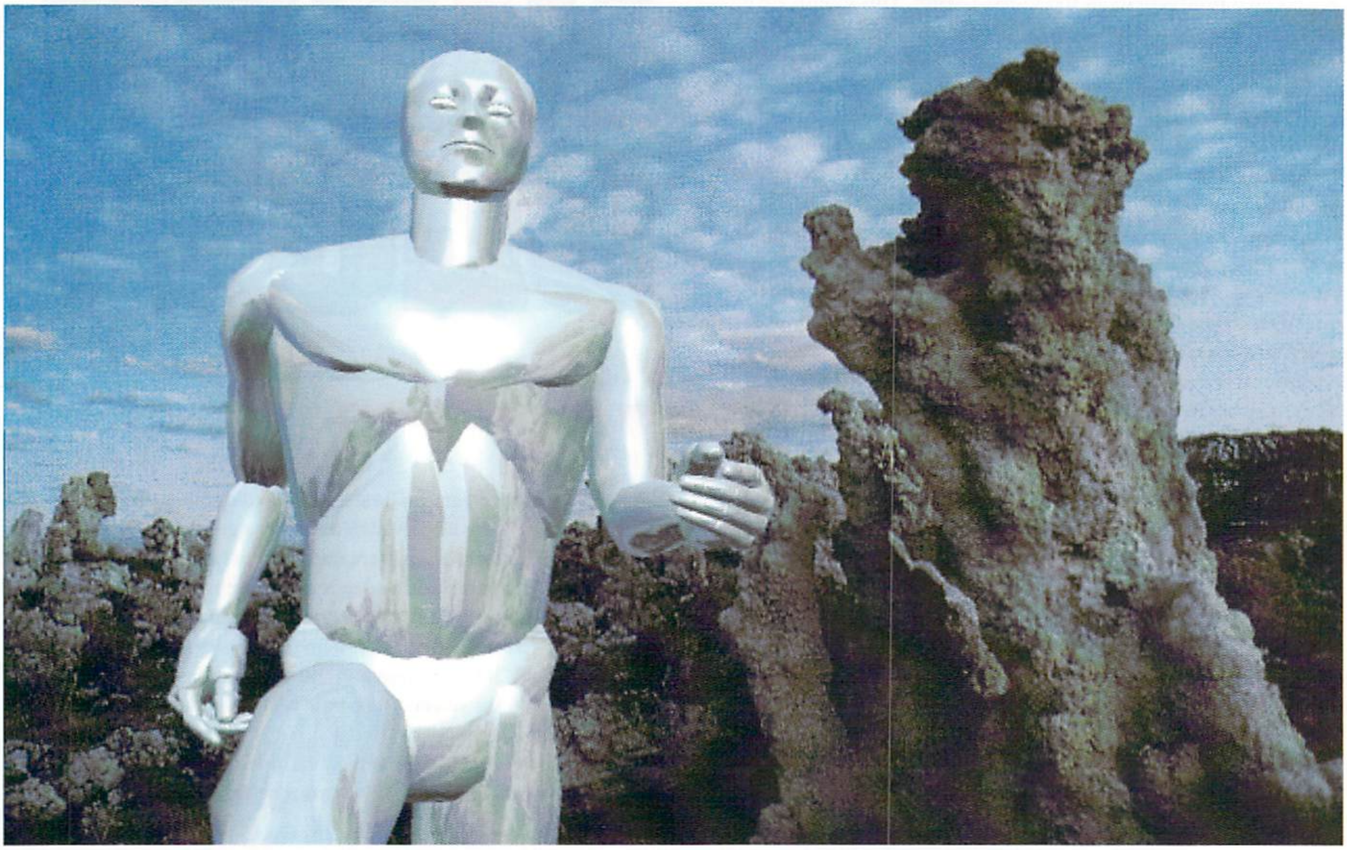
We've used Pro Fills over the past year at our cable studio to produce quick background screens and have generated satisfying results. The original Pro Fills disk was a large group of tiny brushes that could be tiled with a program like *DeluxePaint*. The latest version builds on its success by providing a new group of patterns as well as a custom screen user interface for completely automatic background screen creation. It should be noted that the program is not exclusively for the Video Toaster—it creates backgrounds in standard Amiga modes (8 or 16 color) as well as Video Toaster resolutions.

The main Pro Fills screen has options to select the resolution of the background using either standard or overscan dimensions. Overscan can be standard or maximum. I have found standard to be great for television work because most home TVs clip a little off the edges of an edited 3/4-inch master tape playing back over the air. Maximum is usually overkill and does take additional memory and processor overload for standard Amiga mode work. If you are inputting backgrounds into ToasterPaint then you'll need to use the custom option which allows creation of 10240 x 10240 (!) backgrounds. It defaults to 752 x 480, however, which just happens to be the resolution of a standard Video Toaster framestore. A choice of an 8- or 16-color screen can be selected (8-color takes up half as much memory). The Edge Match option is a great feature. Normally when a background screen is created, little notice is taken as to how uniform and symmetrical the edges are. They are usually off screen in overscan and irrelevant anyway. However, if you plan to create a background to repeatedly brush-map on or across a 3-D object in, say, LightWave 3D, the edges become very important. Edge Match makes sure that the screen you create will have identical edges and can be seemlessly mapped.

On the right side of the screen there are options to load one of 136 patterns and textures to create your background screen. They

Motion Man rendered in LightWave 3D using 640 x 400 resolution.

are neatly arranged in separate descriptive directories and load almost instantly from a hard drive. Another file requester allows using one of the 60 alternate palettes that come with Pro Fills. It's interesting just to load one particular pattern and then experiment with various color choices. In fact, if you find a certain color scheme that works with one of the included patterns, you can save it as a new file using the Modified Pattern requester. Once you have your pattern selected, you can click the Render button and the background will quickly be drawn on your screen. How quickly? Well, depending on system resources, a second or two at most. This program is amazingly fast at creating even hi-res overscan backgrounds. There are a few more options available from a small pull-down menu, including a way to toggle the main interface screen from dim to bright. Dim looks a lot better and greatly eliminates flicker caused by hi-resolution. Another option is to save, or not save, an icon with a background screen. Setting a custom size is available in addition to a save preferences option.



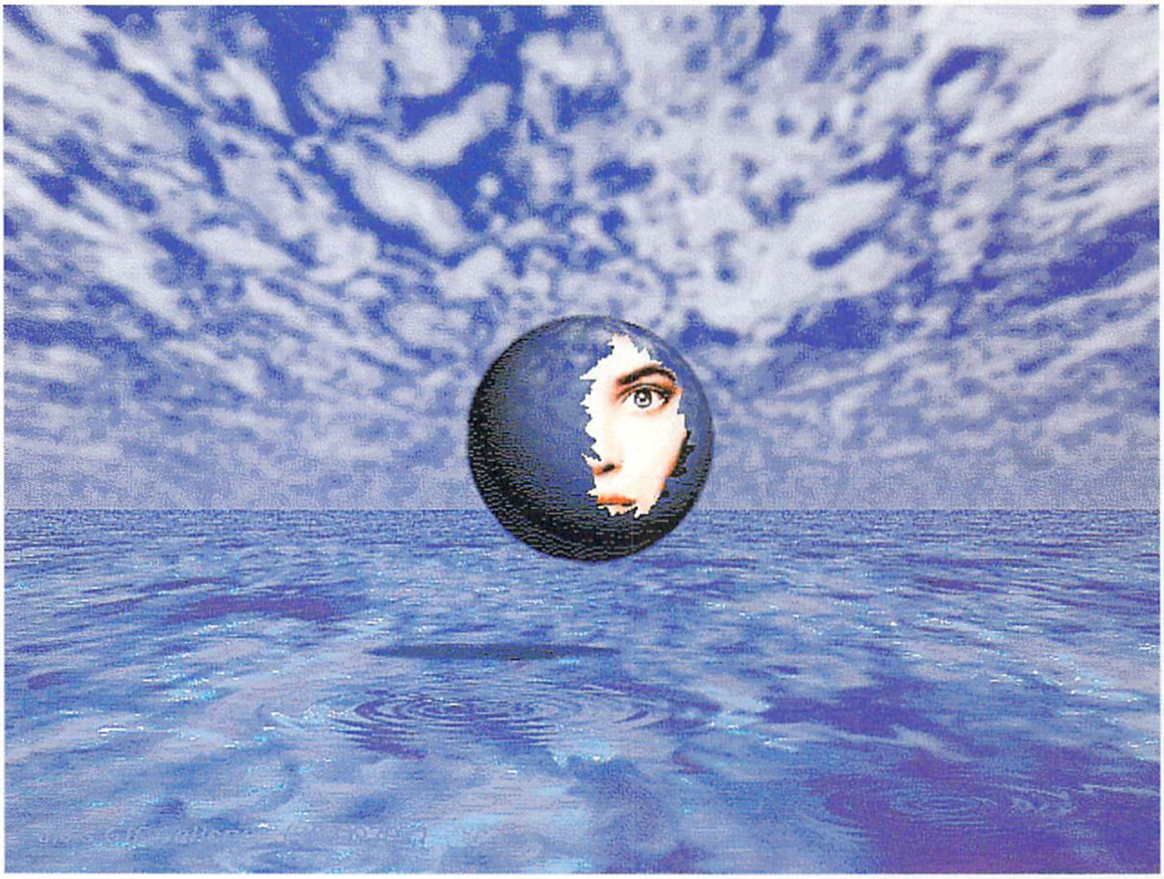
The manual that comes with Pro Fills is comprehensive and highly detailed. It includes an excellent beginning tutorial, detailed reference sections, tips for using Pro Fills with the Video Toaster and DCTV, and also six pages of techniques for creating DeluxePaint special effects such as drop shadows and beveled edges. In addition, there is a listing of all the tiles and black and white representations of the various textures. All in all, Pro Fills Volume 2 is a professional package with a great interface. The manual, although excellent, is not needed to begin working with the program. On the downside, I had trouble with the automatic installation routine. It writes a small program called "profills-startup" to the hard drive which assigns the directories. Once it is written, you have to add a line which executes the program that assigns the directories in your startup-sequence. If this sounds like one step too many—it is. For some reason, I kept getting an error and the program would not execute. I ended up just adding an assign command to my start-sequence (rather than running a program to activate the assign command), and it worked fine. Also, I found that most of the patterns were fairly plain. I have always stressed simple backgrounds, but I'd really like to see the author let loose and create some more interesting complex textures. Some are merely lines or squares; however, several textures such as the paper, sandstone, and vinyl are nicely done. These work great in the Video Toaster and can easily be loaded into ToasterPaint for further tinting and processing. This is probably a good idea since all backgrounds are either 8 or 16 colors, and doing some additional work with the Toaster's millions of colors can greatly enhance the visual impact. The main draw with this program is that it's fast and produces professional results. If you don't have time to create background screens from scratch, Pro Fills Volume 2 will have several ready to go within seconds.

Motion Man

Originally designed for the 3-D program *Imagine*, Motion Man is a complete 3-D human object comprising 60 individual body parts right down to fingers and eyelids. The package comes with a diskette containing the 60-part hierarchical object named Motion Man, four LightWave 3D scenes, and a detailed manual explaining tips and techniques. When designed for Imagine, Motion Man was created as an animated cycle object that could be easily manipulated by moving separate joints such as legs, arms, fingers, and more. The conversion to LightWave was no easy task. Even though the basic object structure remained intact, the grouping of individual objects and parent objects was entirely redesigned and optimized for LightWave 3D. Installation is straightforward and completely automatic. The scenes and objects install directly into the Video

Toaster 3-D directory. What if you want to install the data in a different directory? Well, I did, and ran into problems. LightWave users know that all LightWave scenes and attributes contain detailed path information to make sure that the next time you load a scene all the objects and extra data information, such as IFF texture maps, will be located properly. The Motion Man scenes default to the original 3-D directory in the Video Toaster's directory tree, so installing them on an alternate hard drive and then loading the scenes caused files not to be found. The easy way around this is to always install in the original Toaster directory, assuming you have enough room on your main hard drive.

When you first load Motion Man you can decide if you need the object to have individual fingers or not. If you are creating an animation where grasping or finger movement is necessary, then the standard hands with individual fingers in a hierarchy is loaded when you load the human object. If not, a "whole hand" object is alternately loaded. This will speed up the refresh rate in LightWave's layout mode as well as provide faster rendering times. One very much needed option of this package is the included scenes which contain running and walking motions. Human motion is very hard to recreate, as any 3-D modeler will quickly reveal. Having premade motions saves enormous amounts of time with movement experimentation. The manual includes tips on altering the movement scenes to accommodate specific projects. There are also sections on changing objects and surface attributes, editing the scene file, shifting key cell positions, and incorporating the Motion Man scenes into existing scenes you have previously created. Changing surfaces is very easy, allowed globally or by body part. In the two images that accompany this article, I used the default surface texture, but added a reflective map at about 40 percent for a chrome mirror-like shine.



Right: Composite image "Alien Sea" from the "GIFs Galore" CD by Walnut Creek. Opposite Page: Motion Man 3D object rendered by author using reflective map.

Many may think Motion Man's $100+ price a little hard to justify, but actually the package is well worth it. The manual is first rate, and the object itself is professionally sculpted and provides a large variety of manipulation options. Also, adding a human figure to your animation greatly increases its impact—for several reasons. First, most animations have complex objects and intricate motion paths, but ultimately seem to be taking place in some alternate universe beyond the computer screen. But put an animated human figure in the mix and it's a whole new ball game. Suddenly there's a reference point. If Motion Man is flying, the viewer will be more apt to join in the fantasy of flight and get more involved than he would if he were merely watching inanimate objects rotate and move. A great example of this is the success of the movie "The Lawnmower Man," where characters were *in* a computer world and not just watching it on a 27-inch monitor. If you attend the annual graphics convention SIGgraph, you see that most of the award-winning animations contain a variation on this theme—regular objects like kitchen appliances with facial features as well as human characteristics, moving and reacting as if there were actually alive. I can't stress enough the dramatic impact that having an actual character in your animation can make.

As for Motion Man, it's amazing how fast the object renders. While it still takes a while, especially in higher resolutions, it renders a lot faster than you might expect for such a highly detailed object. My only minor complaint is that he seems a little too tall and skinny. This is only accented by the default settings of the zoom

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lense with the included scenes; try adjusting them in LightWave for best results. Motion Man's size and weight can be adjusted easily using the size and stretch commands in LightWave. I'd also like to see more motion scenes of different human reactions such as jumping and spinning. The talented design crew could surely create a good variety of routines and possibly make them available separately as a "motion disk." Aside from that, Motion Man is an optimized, fast-rendering professional object that serious LightWave users should add to their collection.

Broadcast Fonts 3D

I've mentioned this 3-D font package before in The Video Slot. The folks at Unili Graphics have been hard at work during the past half-year creating 18 brand-new fonts in addition to their regular nine. All 27 fonts are now available in a brand-new collection called *Broadcast Fonts 3D - Professional Pack.* These fonts are designed for use in LightWave 3D and can easily be assembled into words and logos using LightWave's Modeler. Even though this new package contains the original nine fonts, they have been redesigned and updated using Unili's AQPPoints System which maintains proper angle thresholds during curve generation. All fonts contain upper- and lower-case letters, numbers, and 29 punctuation symbols. One advantage to this and all Broadcast Fonts 3D sets is that they now take advantage of Commodore's install utility. It's now possible to install only the font sets you want. This can greatly save hard drive space; it's a good option. The manual gives a detailed tutorial on how to create words using LightWave's modeler as well as a short explanation of phong shading. The variety of fonts is impressive with styles such as Andromeda, Tempest, Hobgoblin, Belgium, Kangaroo, and much more. As I've said in the past, these fonts are expertly crafted; they render quickly as well as smoothly. Their new set is just as impressive as the rest of their product line. If you are creating animations using LightWave and need some 3-D fonts, look no further.

CDTV

Thanks for all the positive response from the Video Slot article featuring CDTV a few months back. Hooking a CDTV unit to your Amiga 500/2000/3000/4000 can certainly boost your creative powers to produce great video. So what's next? Software—and lots of it. Next month we'll continue with Part II of our CDTV exploration concentrating on data disks. Now, I won't be reviewing CDTV programs; instead, we'll go over IS0-9660 compatible CDs from all computer systems which are compatible with CDTV. I've tested many over the past few months, and the results come in next issue. However, here's one to whet your appetite: I gave Walnut Creek (800-786-9907) a thumbs down for its Amiga CD because it was not compatible with CDTV. Well, they have a new disk called *GIFs Galore* that more than makes up for it. GIF is a standard picture format that is viewable on many computers including Amiga, Macintosh, and IBM. Viewers for Amiga are included on the CD, but I highly recommend *Art Department Professional* and possibly a hi-color display board since most contain a 256-color palette and come in many different resolutions; this is when the Amiga 4000 and the AA graphics chip set come in handy. You want variety? This disc contains over 5000 images neatly organized in categories such as nature, raytrace, space, fractals, cars, cats, boats, maps, TV, people, logos, clip art, abstract, and much more. All categories are cataloged with tiny representations, making research a breeze. But the most incredible part is the price: only $24.95. I've tested it with the CDTV to Amiga (via Parnet) hookup and it works great. I find the disc an amazing bargain and use it often for video production backgrounds and images. It'll take a month to go through the thousands of images on this particular CD, so tune in 30 days from now for a look at more software data for CDTV.

•AC•

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Maple V

by Dr. Phil Morrison and Kim Schaffer

Maple V is a new breed of software for the Amiga, although old hat on other platforms, especially mainframes. In its concept and use, it is similar to packages such as *Mathmatica©* which may be familiar to some of you. But Maple V has one major advantage for us: it is available for the Amiga. The first sentence of the introductory manual defines it: "Maple is a system for mathematical computation—symbolic, numeric, and graphical." It is probably not for the average Amiga owner. It is more likely for someone involved in a scientific field, computationally intensive or requiring occasional but complex computation; for example, a college or university student in a science or engineering discipline, a pure or applied mathematician, or anyone with the need to visualize complex functions. In some sense, it is like an upgraded and integrated combination of Numerical Recipes and FORTRAN or C with an extensive graphics capability. For a person who hasn't used such a package, this sounds neat but not overwhelming. However, Maple V has one transcendent capability that the other methods lack: it not only can give a numeric answer to a numeric question, for instance, the solution of a definite integral, but it will manipulate the symbols and give a symbolic solution. Remember those days in algebra, solving simultaneous equations for X as a function of Y and Z? It will do that for you, and much more.

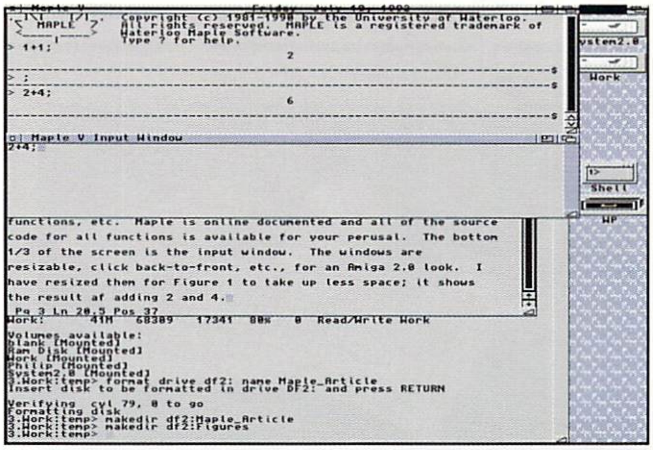
What do you get when you buy the package? Besides the four 3.5-inch floppies, you get four books. Two are professionally published hardcover texts. Also available separately in most college or technical bookstores are the *Maple V Library Reference Manual* and the *Maple V Language Reference Manual.* The first documents the extensive collection of math routines that come with the package—all the standard trig, Bessel, etc. functions, including plotting subroutines, Fast Fourier Transforms, and the like. In addition, the manual also contains a collection of integrated subroutine packages such as calculus, linear algebra, and many others. If you work with science, engineering, or mathematics, there is something for you. There are several specialized packages, such as differential forms for the General Relativists in the audience, a statistics package, a number theory package, and others. Without belaboring it, we can say that the Table of Contents is a 19-page list of functions. As you use Maple V, you will become familiar with this book.

The other manual is the Maple V Language Reference Manual. It contains many examples to get you started, and includes instructions to generate LaTeX, Fortran, and C code. Maple V contains a full-fledged programming language. The language has all the adornments familiar to scientific programmers, such as IF-THEN-ELSE, FOR, DO, WHILE loops, Data typing, etc. Since these manuals are not Amiga specific, the manuals have appendices on running Maple under UNIX with X-windows, or under DOS. If you can't find a dealer that has a demonstration of Maple V, find a bookstore that sells these two manuals to get an idea of Maple power.

The third book, *First Leaves: A Tutorial Introduction to Maple V*, is a introduction tutorial that is spiral bound, lying flat on your computer table. I dove into this for help in specific topics and left the programming language for future use on a larger project. To solve a specific problem, use of the Maple interface and simple commands may be sufficient. The same is true if you're interested in generating 2-D or 3-D plots. I found that as I worked on a problem, browsing through the introductory manual and looking up specifics in the hardbound manuals often steered me to yet another specialized function for which I've been trying to write a routine.

The final book is a slim, 18-page pamphlet on using Maple V on the Amiga. It tells how to install Maple and the Amiga requirements:

AmigaDos 2.0 (and KickStart 2.0)
8MB of hard disk space
2MB of free RAM
and a floppy drive.



```
 |\^/|     Copyright (c) 1981-1990 by the University of Waterloo.
._|\|   |/|_. All rights reserved.  MAPLE is a registered trademark of
 \  MAPLE  /  Waterloo Maple Software.
 <____ ____>  Type ? for help.
      |
> 1+1;
                                       2

----------------------------------------------------------------------$
> ;
----------------------------------------------------------------------$
> 2+4;
                                       6

----------------------------------------------------------------------$
```

```
2+4;
```

```
functions, etc.  Maple is online documented and all of the source
code for all functions is available for your perusal.  The bottom
1/3 of the screen is the input window.  The windows are
resizable, click back-to-front, etc., for an Amiga 2.0 look.  I
have resized them for Figure 1 to take up less space; it shows
the result af adding 2 and 4.
 Pg 3 Ln 20.5 Pos 37
```

```
Work:        41M   68389   17341   80%    0  Read/Write Work

Volumes available:
blank [Mounted]
Ram Disk [Mounted]
Work [Mounted]
Philip [Mounted]
System2.0 [Mounted]
3.Work:temp> format drive df2: name Maple_Article
Insert disk to be formatted in drive DF2: and press RETURN

Verifying  cyl 79, 0 to go
Formatting disk
3.Work:temp> makedir df2:Maple_Article
3.Work:temp> makedir df2:Figures
3.Work:temp>
```

Figure 1: A simple example of a Maple window showing its use as a primitive calculator.

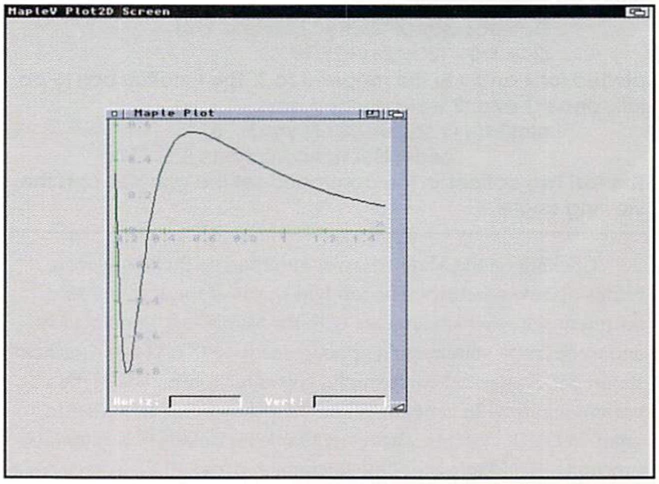
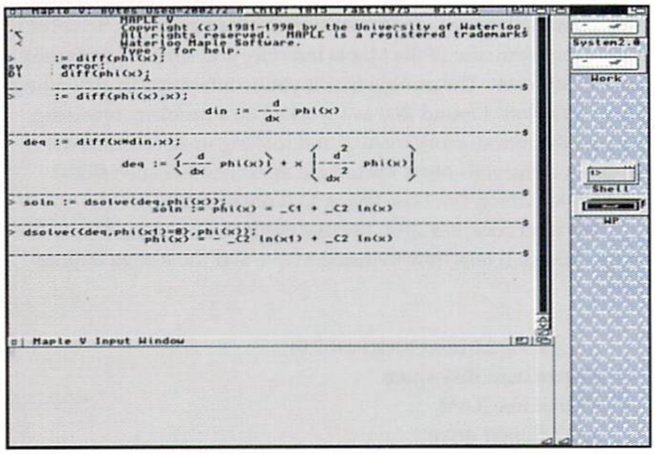


Figure 2: A Maple two-dimensional plotting window.

A numeric coprocessor is not necessary; two versions are supplied, one for an Amiga with a FPU and one without. As usual for large applications, the more RAM the better. I installed it on a stock Amiga 3000 (50MB harddrive, 25MHz clock) with 6MB RAM and had no problems. It multitasks quite nicely; I'm running it right now while typing this in *WordPerfect*. Although I usually work in the CLI, I always begin Maple V sessions from Workbench. It can be run from the CLI as well, and there are some advantages to that. Maple for the Amiga seems similar in its interactions with the user to Maple in MS Windows or the NEXT machine.



```
                 MAPLE V
                 Copyright (c) 1981-1990 by the University of Waterloo.
                 All rights reserved.  MAPLE is a registered trademarks
                 Waterloo Maple Software.
                 Type ? for help.
>     := diff(phi(x);
SY     error:
OI     diff(phi(x);
                   ^
      ------------------------------------------------------------$
>     := diff(phi(x),x);
                               d
                     din :=  ---- phi(x)
                              dx
--------------------------------------------------------------------$
> deq := diff(x*din,x);
                          /  d          \       /  2          \
                deq :=  { ---- phi(x) } + x  | d            |
                          \ dx          /       | ----  phi(x) |
                                                \   2         /
                                                  dx
--------------------------------------------------------------------$
> soln := dsolve(deq,phi(x));
                    soln := phi(x) = _C1 + _C2 ln(x)
--------------------------------------------------------------------$
> dsolve({deq,phi(x1)=0},phi(x));
                    phi(x) = - _C2 ln(x1) + _C2 ln(x)
--------------------------------------------------------------------$
```

Figure 3: An example of how Maple V can be used to solve a simple differential equation with boundary conditions.

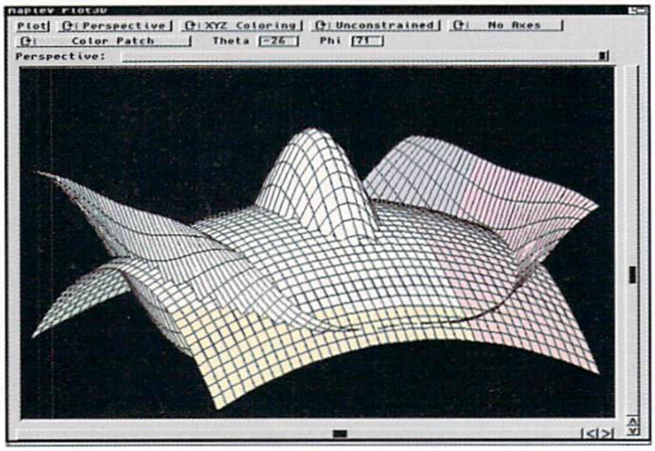


Figure 4: An example of a 3-D plot of intersecting surfaces given by the equations:

f1: = cos (sqrt(x^2+3*y^2))/(1+x^2/8)

f2: = 1/3 - (2*x^2+y^2)/19

plotted for x and y in the range -3 to 3. The function call to do this, once f1 and f2 were defined, was:

plot3d({f1,f2}, x= -3. . 3, y= -3. . 3, grid=(41,41), orientation= (26, 71));

The last two options in the command set the grid size and the viewing angle.

Clicking on the Maple drawer and then on the Maple icon brings up two windows. The top two-thirds of the screen is the output window which appears with the Maple logo, a maple leaf, and a copyright statement; it appears ready with a "Type ? for help" statement. Somewhat confusingly, you enter commands in the bottom window. In general, "?" or "help(function)" is similar to 'man' in UNIX systems, always available for details of commands, functions, etc. Maple is on-line documented and all the source code for all functions is available for your perusal, that is, the entire Library Reference Manual. The bottom one-third of the screen is the input window. The windows are resizable, click back-to-front, etc., with an Amiga 2.0 look. Maple also has an ARexx interface, but it is minimal, and not very useful without a great deal of work. However, this is supposed to be remedied in the next Maple V upgrade.

The simplest use of Maple is to treat it like a calculator. Figure 1 shows the result of adding 2 and 4; I have resized the windows in Figure 1 to take up less space. You enter the desired calculation in the input window, followed by a semicolon—all Maple commands are ended by a semicolon—hit return, and it is repeated in the output window followed by the answer. At this level it can be used as a programmable calculator with user defined storage variables, user defined functions, etc.

Another example of a Maple window is the 2-D plot window. Enter this example from the manual:

```
plot(sin(1/x)*exp(-x),x=.15..1.5);
```

The result is as shown in Figure 2, a very nice two-dimensional plot over the range of x = .15 to x = 1.5. These abilities would make it useful for a senior-high course in algebra or pre-calculus, or a similar college freshman course. I would not recommend spending this much money for the functionality of a good calculator, but if Mom or Dad has Maple, then use it!

As an example, a problem that I was particularly interested in solving was the solution for the electrostatic potential in a coaxial geometry with a center conductor (wire) surrounded by three coaxial layers of different dielectrics and then an outer conductor. The problem is a simple solution of an easy differential equation, but the large number of boundary equations produces a lot of algebra and a good chance for mistakes. I had a solution on paper from some years ago that I thought was OK, but I wanted the computer to reassure me, or, if necessary, correct me.

This required some relatively simple concatenation of examples from the tutorial, but it took a fair amount of trial and error to adapt the solutions in the manual to real life. The first step in this, the definition and solution in the first dielectric layer, is outlined in the screen shot from Maple in Figure 3. The repetition in the output window of the input tells what I typed into the input window, while the program's reply, below each input line, shows what the computer thought it was. This output line demonstrates two things, first how to write derivatives in Maple, though there is another more direct way, and helps to define what the input line means. The second shows off "pretty print," the attempt to have the screen display algebra and calculus notation in the absence of explicit fonts. For example, a large parenthesis is shown as a combination of fore and back slashes and vertical lines. Integral signs are drawn in a similar fashion. Although awkward, it is a real boon to the user and about the best that can be done without going to a full graphics screen. Note that each input and Maple reply are set off by a horizontal dotted line. The last two steps solved the problem twice, once in general, and finally subject to the potential boundary condition on the inner conductor (x is used for the radius). I have set it up in easy steps to make it simple to interpret. It also demonstrates how Maple commands and define-as-you-go variables can build on each other to form very complex expressions. It could have been defined all in one line, as some programmers do in C.

The major complaint about this trial-and-error effort is the lack of good feedback from Maple; it certainly told you when you were wrong, but didn't usually give a concrete or succinct reason why. It would say "syntax error," for example, with no detail or alternatives that might fit what you were trying to do. Note that the simple mistake in the beginning of Figure 3 was corrected in the next line.

In this sense, the entire package is similar to most programming languages. There is a diagnostician, called mint, like lint for C, but I never got around to using it. I guess it would become important if you develop complex code, but I just suffered the frustration and continued. It is actually a compliment to the developers that it can be profitably used with very little preparation. You find an example in the book that looks a little like what you want to do, or reading the tutorial, you say "Hey! I can ..." and off you go. For example, instead of the primitive definitions of derivatives that I used in my example above, I could have begun immediately with the Laplacian function. Very nice, if frustrating.

When you begin to use Maple for sophisticated operations, there is a warning to keep in mind: *To get the correct answer, and know that it is correct, you must understand what you are doing, and anticipate an answer.* There are built-in assumptions in the software that will cheerfully give the wrong answer, just as the naive student would do in solving the problem by hand. This is not a problem with Maple, but just an example of the level of abstraction to which it can rise.

Along with all the special math functions, Maple contains perhaps even larger numbers of manipulation functions. After "factoring" a polynomial (functions in italics), you can "combine" terms, "collect" terms with respect to a chosen variable, "sort" terms in user specified order, and perform many other functions designed to rearrange an expression in such a fashion that you can see what to do next. In other words, Maple can make it easy to do all of the things that you would otherwise do on paper to solve/manipulate an expression.

Once you become more familiar with the Maple V programming language, there is another whole set of functions and procedures to optimize your code. The time spent in different parts of the code during computation and the memory usage can be monitored to tell the user where to optimize code performance, for example. You can set an arbitrary precision to the arithmetic, with a reduction in performance, or use the hardware floating point arithmetic, if you have an FPU, to speed things up.

Before wrapping up this review, I can't help showing off one of the incredible 3-D pictures that can so easily be drawn by Maple and almost make it an artistic tool rather than just a calculation engine. Figure 4 shows off two intersecting surfaces, as well as the Maple V 3-D interface. Perspective can be shifted by the sliders on side and bottom, axes can be drawn in, and the screen resolution can be changed. This took a couple of minutes to compute and draw in hi-res interlaced.

Finally, Maple is more than just the software, it is also the support. There are two Maple newsletters, excellent customer support by just about all media imaginable, extended maintenance (if you find a bug in a module they will fix it and send you the new version, for free), and membership in the Maple Users Group. There is also an anonymous ftp site for library upgrades and user-supplied packages available. Maple is strongly supported by its users as well as by Waterloo. Finally, there are discount possibilities, for educational use, site package deals, and other possibilities. See your computer science center or your department's computer guru.

So that I don't leave you with an overly sweet taste, I'll finish with some gripes. When you use the two-window interface, called IRIS, you lose the command line history that you have become accustomed to from ConMan, WShell, or AmigaDos 2.0. You can edit the line on which you are working, but can't call up previous lines and edit them. If you just got a syntax error in a long line, see the mistake, but have to re-type the entire line, you will curse. This can be avoided by using the CLI interface, but it has other problems. I use MACH II with the Sunmouse option and sometimes there is a bit of confusion as to what window I'm really in, particularly with an input window, output window, WordPerfect, a CLI or two, a plot window. A click always works, but be wary.

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In addition, the software doesn't always follow the manual. That's not unexpected since the software is continually being updated, while the manuals are not; the text books run around $30. But the command to check for recent updates is not "?updates," as stated, but "?updates,v5"; otherwise, one gets the dreaded syntax error. A little bit of play, and use of "help(updates)" got it figured out, but it shouldn't have been necessary.

The most frustrating thing has been the lack of detail in the error messages. If it knows I've made a mistake by leaving out a parenthesis, why can't it tell me explicitly like most compilers or interpreters do? But, with all of the frustrations, it has hung the Amiga only once. With all the windows and screens, I lost a requester from WP. "Should I overwrite file?" In searching for it, something happened, and the computer froze solid until a warm reboot. It's a remarkably stable program.

•AC•

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ARexx

ARexx is the best language for developing utilities to help you in your everyday work, because it is so easy to use once you have a feel for it. Here's a utility to help you JPEG—compress using the JPEG file format—your IFF images whenever you are copying them to floppies or other storage. The same utility can decompress your JPEG files as well. The idea for this utility came from my friend Joe who works at a local Amiga-based photographic image processing company. One afternoon, he commented that he would like to find the time someday to make an ARexx utility to automatically JPEG stuff onto a floppy or decompress it from a floppy using *Directory Opus*. Thanks to Joe's idea and the beauty of ARexx, I had the programs for this column coded that same evening.

We will make the program in two parts: one called JPEG.dopus for use as a "front end" from Directory Opus (DOpus) by INOVAtronics, and the other called JPEG.rexx as a stand-alone program which may be launched from a shell, for those who don't use DOpus. The latter program does double duty as an exterior function called from the DOpus-launched ARexx program JPEG.dopus. It actually does all the "work" and the other program just serves to interact with Directory Opus so that we can drag-select a list of files to JPEG or decompress.

Software Specs

First we write down our software specification which is the conception of what we want the programs to do. The best way to program without losing track of what you are doing is to write such a software spec, and then to write more detailed pseudo code in the form of English descriptions of each step of the program, much like an outline for a term paper. If you always wrote your term paper outline in high-school English after you wrote your paper (based on the comic book rather than the real book), then this technique will be lost on you. ARexx is so user friendly that you may be tempted to start coding, but until you learn orderly habits of coding, try to make a simple outline first. After you get a "library" of ARexx programs you will find out how easy it is to cut and paste chunks of code together for your custom applications. In fact, I did just that with these programs. Can you find the places I adapted code from previous columns?

1. First, we need to drag-select several files in the source window of DOpus. Then the program parses (divides) paths and names of the files into a set of variables (an array) and passes one element at a time (in a loop) with arguments, in the form of path and file names as well as a quality parameter and boost keyword, to another program (an exterior function). That program sets up *ADPro* to JPEG or decompress each of these files. We need some error handling if we select something we cannot JPEG, such as a text file or an executable: an orderly exit with an error message displayed in the DOpus window top bar. If the error occurs in the exterior function, then we want that program to pass back a RESULT value indicating a failure. JPEG.dopus takes care of parsing the file names into an array. JPEG.rexx calls up ADPro and JPEGs or decompresses our files.

2. Once we click on the gadget of the JPEG dopus program, our exterior function JPEG.rexx processes each file in one of two ways: If the file is JPEG compressed already, it decompresses and saves the file to the destination window of DOpus. If it's not JPEG compressed, the program JPEG compresses it, and saves the JPEG result to the destination window. If a regular image is detected, JPEG.dopus prompts for input of quality parameter and BOOST keyword. If the image is already in JPEG format and we are decompressing it, no prompt is shown. This decision is based on whether the first file in the list is or isn't in JPEG format. We hard code defaults into the requester so that a simple click on OK will implement a quality of 32 BOOSTed quality, good compromise values.

3. We choose to let the qualifier ".jpeg" or ".jpg" stand as a "file type" for a file that is JPEG compressed. This signals our program that a file is in JPEG format. ADPro suggests the ".jpg" qualifier, and we can include ".jpeg" as well with no more programming effort. JPEG.rexx will append ".JPG" to those files it JPEGs and will strip off ".jpeg" or ".jpg" from files it decompresses so that the qualifier will indicate whether the file is compressed or not. This is what we mean by "file type." Thus the same utility program toggles between JPEG and decompressed images. You would not ordinarily use the program to compress some files and decompress others at the same time into a destination directory. You would normally use it to select all files with ".jpg" for instance on a floppy, and copy their decompressed images into your hard disk; or select a group of images from hard disk to JPEG and save to a floppy disk. JPEG.rexx handles all the JPEG action.

4. JPEG.rexx acts as a stand-alone program which runs from a shell for the convenience of those who don't own Directory Opus. The stand alone program will take arguments for path and filename, destination path, the numeric quality and a "BOOST" keyword. JPEG.rexx tests for the file name and destination path arguments and prompts for them if omitted. If the arguments for quality or boost are omitted or are not the correct values, then the program automatically uses defaults. JPEG.rexx also flags files it has processed by changing the output name to all capital letters. This is a by-product of parsing using the UPPER option in order to catch all permutations of upper and lower case. Otherwise we'd have to

Configure a Directory Opus Gadget to JPEG and Decompress Images in ADPro

by Merrill Callaway

account explicitly for ".Jpeg", ".JPEG", ".jpeg", etc. This would be easy to do, but I thought it better to tell at a glance which files had been processed by these routines. Why? Because JPEG permanently eliminates some of the image quality each time it is invoked. If I JPEG and decompress an image several times, information is lost permanently. A file name in all caps warns me not to JPEG it again, and to go back to the original.

Notes on the Code: JPEG.dopus

OPTIONS RESULTS means that we want the program to ask for and receive replies from outside. SIGNAL ON ERROR branches to the Label Clause ERROR: in case an error is detected, and performs an orderly shutdown of all programs along with a message in the top bar of the DOpus screen. The address of the current host is 'dopus_rexx', a case-sensitive name of the ARexx port of Directory Opus.

There are several commands for DOpus to get the active window, set the path name, set the path to the destination window, and so on. Note the pattern of giving a command and assigning one of our variables to the value of the RESULT variable returned by the command. This is the heart and soul of interprocess control with ARexx. Commands have no meaning to the ARexx Interpreter, called rexxmast, so they are sent along to the current host address ('dopus_rexx') where they do have meaning. The reply contained in RESULT is fed back to the program which can read it if OPTIONS RESULTS is set.

An Array Handles Individual Files

Although you can parse individual files from DOpus, it's far easier to use an array, as they are extremely easy in ARexx. Note the technique of parsing the variable called "file", a long string containing all the names of the selected files, into array elements called "fname.n" as n runs from 0 up until the string called "file" is empty. The loop feeds recursively on "file" by nibbling off the first word, assigning it to "fname.0" and putting the rest of the string (minus the first word) back into "file." After n is incremented, the process repeats WHILE file is not equal to the null string. ARexx is very efficient this way! At the end of only five lines of code, we have each file name in an array: fname.0 is the name of the first file; fname.1 is the name of the second file, etc.

Finding Out Whether the File Is JPEG Format

We parse on a pattern ".JP" and then compare the LENGTH of the results to see if the file is JPEG or not, since the pattern itself is discarded from any target tokens. (Target tokens are the variables in the template, which follows PARSE VAR varname and tells the PARSE instruction how to assign values to these targets.) If the file is NOT JPEG—the lengths are equal because there is no pattern ".JP"—then we prompt for JPEG parameters. We use a DOpus command to "getstring" and supply a default in the prompt. If we 'Cancel', then an error is generated and our error trap takes us out of the program. If we 'OKay', then the default string is input. We can also enter a string directly. Note how easy it is to check for the proper input types. If these are not correct, the program uses the SIGNAL PARAMS instruction to take us back to the input gadget.

Calling the Exterior Function

A loop from 0 to n-1 is a CALL to JPEG.rexx to process our files one at a time. CALL passes arguments to that program. Note how we can concatenate two variables into one argument: "path | | fname.i" is only one argument, the path of the source or active window concatenated to a file name in our list indexed by the integer i. The second argument is "destpath" the destination window path. The third and fourth arguments are the JPEG quality number index and the keyword to BOOST or not (the null string if no boost wanted). Assuming the data goes over OK, the next line tests the RESULT sent back. We have coded the external function to return a 0 if it went OK. If NOT 0 then we do some error processing and put up a message in the DOpus window. If the RESULT is 0 for all array elements, then we exit ADPro, put DOpus to front, rescan, and exit. Note how we send only one command ('ADPro_Exit') to another host without changing the current host address by putting the address and the command on the same line.

Notes on JPEG.rexx

Many of the features of JPEG.rexx are similar to those of JPEG.dopus and we will not repeat them. Look, however, at the first PARSE instruction. PARSE UPPER ARG first converts the incoming ARGument string to UPPER case. Then it takes the argument string and assigns the the value of the first word, which was "path | | fname.i" to a new variable (a target) called "pathfilename." It assigns "todir" to the value of "destpath," "num" to the value of "num" and "type" to the value of "type." The final period in the PARSE line is to FORCE TOKENIZATION, a fancy way of saying we don't want any spaces padding our new variables; we want one word, one variable. The period (.) soaks up all the stuff not assigned already such as stray spaces. In ARexx-speak a symbol token is a variable. Because each ARexx program is a separate DOS process, a new symbol table is set up for each program and even though two of our new symbol tokens are named the same, they are completely separate and protected from changes made in the other program.

Next we have some logic for when we use this program stand-alone and you forget to supply arguments. The SAY instruction

→

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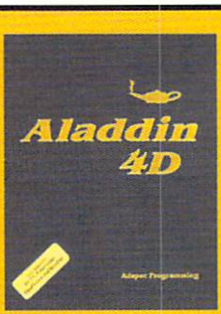

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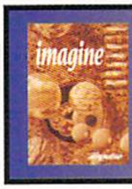

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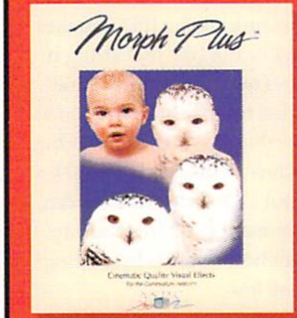

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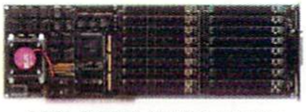

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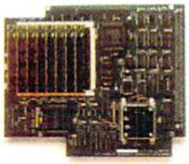

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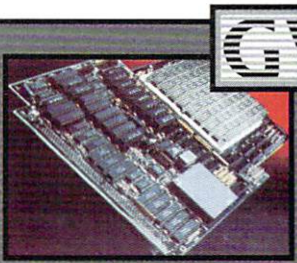

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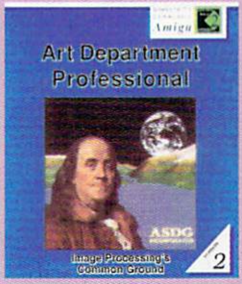

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prompts you. When the program is an external function, SAY will never do anything as there would not be any shell to receive output.

The next logic is to handle paths and such. You may have input a path as "Device:path/," "Device:," or "Device:path," and we need to make sure that only one "/" or one ":" is at the end.

We also need to find out whether or not JPEG is the format, much the same as in the other program. We could have passed an argument as a flag after finding this out in the other program, but then we'd sacrifice the stand-alone quality of this program, so we duplicate. We set the various load and save formats as well as the load and save options according to the JPEG format logic.

Finally, we locate ADPro or start it up as the case may be. This is a useful chunk of code to use in all your ADPRo macros. I have coded it as an interior function to keep it separate and the code cleaner. Study it and the use of Waitforport to start up a program. Don't forget to set the memory usage MAXMEM to *your* level!

At last we can do the work! Since all the options and formats are ready, we merely Load and Save using variables instead of literal strings. Note how efficiently ARexx evaluates and then executes expressions made up of commands and symbol tokens. You may write very compact code. There are only four lines that do the work once we have set up our variable list. If the processing went OK, then we EXIT 0 to put a 0 in the RESULT. Otherwise we have an error and we EXIT 20, tripping off the error trap back in the original calling program. Now you and Joe can JPEG or decompress your images automatically from Directory Opus or from a shell.

Jpeg.adpro

```
/*
** Jpeg.adpro a stand alone or external function to
** Jpeg compress a file in ADPro, or decompress a Jpeg
** file in ADPro, if it has the qualifier '.jpeg' or
** '.jpg'  This program acts like a toggle to jpeg
** or decompress a file according to the qualifier.
** (c) 1992 by Merrill Callaway
*/

TRACE OFF
OPTIONS RESULTS
SIGNAL ON ERROR

PARSE UPPER ARG pathfilename todir num type .

/*
** Change to the parameters YOU want, or
** re-code this like the section below to
** ask you for the parameters.
** 0<num<101 and type='' or type='BOOSTED'
** SEE: Jpeg.dopus for some requester logic
** for this item.
*/

/*
** Running from a shell, then if no args are supplied, we need
** to ask for the filenames.
*/

IF filename=''| todir='' THEN DO
   SAY 'Enter path/filename destination_path num type'
   PARSE UPPER PULL pathfilename todir num type .
   END

/* Take care of arguments */

IF num<1 | num>100 | ~DATATYPE(num,WHOLE) THEN num=''
IF LEFT(type,5)~='BOOST' THEN type=''
ELSE type='BOOST'
IF num='' THEN DO
   num=32
   END


PARSE UPPER VAR pathfilename part':'filename

DO WHILE filename ~=''
   PARSE UPPER VAR filename first '/' filename
   END

filename=first
IF RIGHT(todir,1)='/' | RIGHT(todir,1)=':' THEN NOP
ELSE todir=todir||'/'

/* Find out if the file is .jpeg or not */
/* note that both .jpeg and .jpg will work */

PARSE UPPER VAR filename firstpart '.JP' .
IF LENGTH(filename)>LENGTH(firstpart) THEN DO
   loadformat='JPEG'
   lopts='SMOOTHING'
   sopts='RAW'
   saveformat='IFF'
  savefile=todir||firstpart
   END
   ELSE DO
   loadformat='IFF'
   saveformat='JPEG'
   lopts=''
   sopts='RAW' num type
  savefile=todir||filename||'.JPG'
   END


CALL Locate_ADPro

/* Jpeg or decompress the image? */

IF RESULT = 1 THEN DO
   ADDRESS 'ADPro'
   ADPRO_TO_FRONT
   LFORMAT loadformat
   LOAD pathfilename lopts
   SFORMAT saveformat
   SAVE savefile sopts
   EXIT 0
   END
   ELSE EXIT 20


/* Find out if ADPro is running...*/
Locate_ADPro:
```

```
IF ~SHOW('P','ADPro') THEN DO
/*
** NOTE! I have lots of RAM. Fix the MAXMEM=# to your RAM prefs
** (the maximum amt of RAM you want ADPro to use (in bytes).
*/
   ADDRESS COMMAND "RUN ADPRO:ADPRO BEHIND MAXMEM=14000000"
   ADDRESS COMMAND WAITFORPORT 'ADPro'
    IF RC=0 THEN RETURN 1
    ELSE RETURN 0
    END
ELSE RETURN 1

ERROR:
EXIT 20
```

Jpeg.dopus

```
/*
** JPEG.dopus JPEG utility for Directory Opus
** Gets selected files in source window and jpegs them
** in ADPro one at a time and saves them to the destination
** window in JPEG format.  Appends ".jpg" as a qualifier
** at the end.  If the file already has ".jpg" or ".jpeg" as
** a qualifier, then the program decompresses it and saves it
** to the destination window. Calls Jpeg.adpro to do the work.
** JPEG.rexx may be used as a stand alone program run from
** a shell. (c) 1992 by Merrill Callaway
*/

TRACE OFF
OPTIONS RESULTS

SIGNAL ON ERROR

/* Send commands to: Directory Opus ARexx port. */
ADDRESS 'dopus_rexx'

/*
** Get the parameters for JPEG saving
** a number between 1 and 100
** (the higher the number, the better the quality)
** and if you want "boosted" or normal=""
** Error checking. If you cancel the program stops
** and puts a message in the top bar or opus.
** 'BOOST' is the required keyword, but 'BOOSTED' is
** also included for completeness. BOOST#? works, too.
** First five letters are what count.
*/

/* get the active window */
STATUS 3
window=RESULT
IF window THEN destwind=0;ELSE destwind=1

/* set the path name to active window path */
STATUS 13 window
path=RESULT

/* set the path name to the destination window */
STATUS 13 destwind
destpath=RESULT

/* Get rid of path(s) with a space in it! */
IF LEFT(path,8) = 'Ram Disk' THEN DO
   PARSE UPPER VAR path ':'rest
   path='RAM:'||rest
   END

IF LEFT(destpath,8) = 'Ram Disk' THEN DO
   PARSE UPPER VAR destpath ':'drest
  destpath='RAM:'||drest
   END

/* Put all selected file names into a long string */
getselectedfiles
file=RESULT

NONE /* to deselect all files that were selected */

/*
** Extract the individual file names
** one at a time and read them into an
** array for passing to jpeg routine
** later.
*/

n=0
DO WHILE file~=''
   PARSE UPPER VAR file fname.n file
   n=n+1
   END

/* Skip the next part if we are DEcompressing */
num=32
type='BOOST'
PARSE UPPER VAR fname.0 begin '.JP' .
IF LENGTH(fname.0)=LENGTH(begin) THEN DO
   PARAMS:
   getstring 'Default: 32 Boosted {1<=N<=100 [BOOSTED]}'
   reply=RESULT
   IF reply='' THEN reply='32 BOOSTED'
   sopts=UPPER(reply)
   PARSE UPPER VAR sopts num type .
   IF ~(num>0 & num<101) THEN SIGNAL PARAMS
   IF ~(LEFT(type,5)='BOOST' | type='') THEN SIGNAL PARAMS
   END

/* Process the list in ADPro */
DO i=0 TO n-1
  CALL Jpeg.rexx path||fname.i destpath num type
  IF RESULT~=0 THEN DO
     rescan destwind
     TOPTEXT 'ERROR PROCESSING FILE OR NONE SELECTED!'
     ADDRESS 'ADPro' ADPro_Exit
      EXIT 5
      END
  END

ADDRESS 'ADPro' ADPro_Exit  /* Does not change current address */
dopustofront
rescan destwind
EXIT 0

ERROR:
ADDRESS 'dopus_rexx' 'TOPTEXT ERROR or CANCEL'
ADDRESS 'ADPro' ADPro_Exit
EXIT 20
```

•AC•

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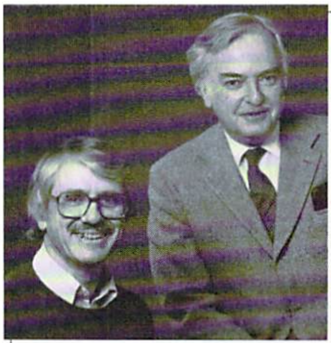

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DIVERSIONS

Civilization Review

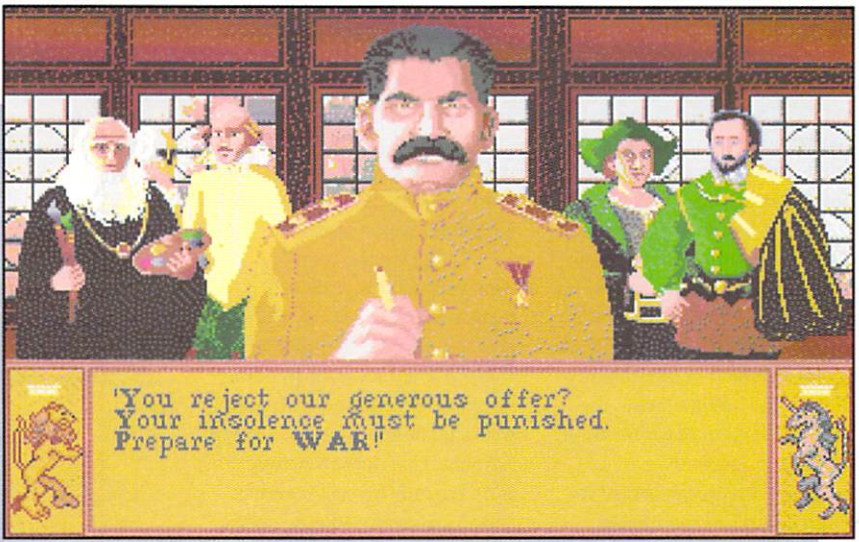
By Jeff James

One of the most popular computer games to ever grace a monitor screen, Microprose's *Civilization* ($69.95) has finally been ported to the Amiga. Designed by the brilliant Sid Meier (creator of the megahits *F-15 Strike Eagle*, *Silent Service*, *Gunship*, and *Railroad Tycoon*), Civilization takes the genre of the "god game" to new heights. I had played the MS-DOS version of Civilization extensively; needless to say, I had high hopes for the Amiga version. Unfortunately, the Amiga conversion of Civilization doesn't quite meet those expectations.

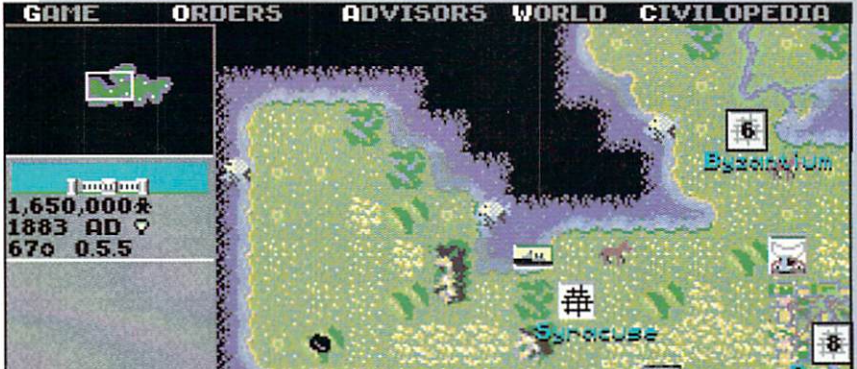
The premise behind Civilization is a simple one; starting out with a meager few settlers in the year 4000 B.C., you must found a city and begin farming cropland and exploring your surroundings. You can expand your nascent empire further by founding new cities, building roads, and digging mines. In addition to physically expanding the size of your civilization, you must turn inward and increase the knowledge and intelligence of your kingdom as well. Over the course of your rule, you must direct your scientists to research new technology ranging from the basic skills of pottery making and bronze-working to developing atomic theory and a viable space program. These skills are interconnected; for example, you must first develop the alphabet before you can discover the science of mathematics.

Not all your time is spent plowing fields and researching new technologies. Up to seven other civilizations may be competing against you, led by the most powerful leaders in world history. Napoleon commands the French, while Genghis Khan directs the Mongol Hordes. Abraham Lincoln serves as the American leader; Ghandi speaks for the East Indians; Stalin for the Russians; and Julius Caesar serves as the commander of the Romans. Almost two dozen world leaders are simulated in Civilization, with each behaving much like the actual, historical leader would. Lincoln and the Americans lean towards democracy and trade; Genghis Khan and the Mongols emphasize military conquest and territorial expansion. You can fend off your neighbors with an immense variety of military units, culled from the annals of world history. At first you may only be able to field a few units of sword-wielding legionnaires. As your civilization gains technological advances, more powerful units—such as cannon, musketeers, tanks, jets, even nukes—become available.

If all of that wasn't enough, players can even build "Wonders of the World"—impressive feats of human ingenuity, engineering, and insight that impart a number of benefits to your civilization. Early in the game you can opt to build the Pyramids or the Great Wall, while later eras allows you to create such wonders as the Great Library, Newton's College, and



'You reject our generous offer?
Your insolence must be punished.
Prepare for WAR!'



the Apollo Lunar Missions.

Civilization requires 1MB of RAM and runs fine on accelerated Amigas running AmigaDOS 2.0. Civilization will work on a single floppy Amiga setup, although I'd strongly recommend either a hard drive or an additional floppy-disk drive to speed things along. When installed onto a hard-drive, Civilization occupies approximately 1.8MB of space. In games with more than three or four computer-controlled opponents, gameplay can slow to a crawl on a slower machine—owners of accelerated Amigas shouldn't have this problem. The included manual is lavishly illustrated and stuffed to the margins with game information, making it a perfect addition to the game itself.

Programmed by MicroProse U.K. in England, the Amiga version of Civilization suffers from a surprising number of irksome defects. The most obvious shortcoming is the graphics, with colors and images looking washed out and indistinct. The hard-drive installation program allows installation only to volume names, such as Work:, DH0:, and so on. Installing the game to a directory on a volume (such as Work:Games/) isn't allowed. After installation, the install program adds four assign statements to the startup-sequence; unfortunately, on my system these lines were added after the endcli command, causing the game to ignore them and display the perplexing message "Please insert disk 8." Editing my startup-sequence and moving those assign statements before the endcli command solved the problem. Upon exiting the program, my machine frequently locked up, forcing me to reboot.

For a company which has earned a sterling reputation for polished products and a strict attention to detail, Civilization for the Amiga is somewhat of a disappointment. Other MicroProse Amiga ports—such as *Knights of the Sky*, *Pirates*, *Red Storm Rising* and *Railroad Tycoon*—display an attention to detail that Civilization for the Amiga sorely lacks. It seems that Civilization was ported to the Amiga market in a hurry. Unfortunately, it shows.

Conversion flaws aside, Civilization still emerges as an excellent product. The gameplay itself is first rate; Civilization is about as addictively playable as a game can be. I've spent many pleasurable hours playing the MS-DOS version of Civilization, and the Amiga version is no exception. If you can accept the rough edges just mentioned, Civilization will keep you entertained—and addicted—for a long time.

Dojo Dan

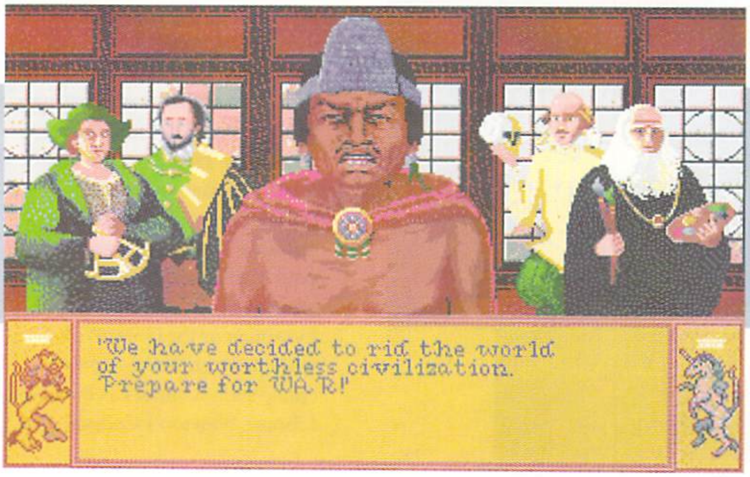
by Rob Hays

In *Dojo Dan* from Europress Software, you take the role of a diminutive ninja who must rid the world of the King of All Things Evil. Of course, before you get a chance to take on the evil Valrog, you have to fight, jump, and tumble your way through five sections. Each section is composed of four sub-sections called cantons. These cantons are inhabited by mutants created by Valrog for protection from troublesome ninjas such as yourself. As you punch and kick these mutants, they release items that, if caught, give different bonuses. As you pass various points, vases hidden by previous adventurers become visible. Break these open to recover bonus increases in strength. Be careful, because some vases have been tampered with and contain poison.

Dojo Dan has many similarities to other British platform arcade games. The good similarities include colorful graphics with smoothly scrolling screens and well-done character animations. If you stop running, Dan doesn't merely stop. He puts his feet together and skids, pebbles flying, in the best Saturday morning cartoon tradition. Pausing or resuming the musical soundtrack causes him to perform a short music-related animation. If too much time passes without input from the joystick, the figure turns and faces you from the screen and makes an impatient gesture with his hands. The bad similarities include disk-based copy protection, which means no hard disk installation. Worse, this game continues the British trend by failing to adjust its display for the U.S. video standards. The bottom inch or so is not visible, which means such basic arcade information as your current score, number of lives remaining, and accumulated bonuses are partially or completely hidden.

Dojo Dan requires 1MB of RAM and a joystick, and runs properly under AmigaDos 2.04 and on the A-3000. Games can be paused at any point and saved on a separate disk at the end of each section. High scores are also saved to disk, although these are written to the master game disk.

Like all good arcade games, Dojo Dan is guaranteed to keep you from doing work on your computer until the cramps in your joystick hand get too painful.



"We have decided to rid the world of your worthless civilization. Prepare for WAR!"

Compete with the likes of Napoleon, Genghis Khan, Stalin, and Ghandi in Civilization.

Third Reich

by Richard Mataka

Third Reich is a strategic simulation of World War II. The boardgame of the same name could take weeks to complete. The computer game is faster but it can still take a considerable amount of time. All of the gaming elements encountered in WWII are covered in Third Reich as you deal with the military, economic, geographical, ideological, and chronological events of that time.

Manual

The manual is only 19 pages long and reminds one of the boardgame manuals. There are only three chapters: Description of the Game, Playing the Game, and Additional Information. While all the information needed to play the game is presented in the manual, it's not always clear. You will often find yourself referring to the game manual to clarify points until you learn the game system. The game system is not complex to learn, but you will encounter points that need clarification. As with any good game, Computer Third Reich's complexities are encountered in the strategies you will use, not in learning the game system.

There is no physical copy protection of the Computer Third Reich disk. However, upon booting up the disk, one of the first screens you encounter requests you to enter a word from the manual. This manual copy protection is the standard type that is being used by most software publishers today. However, the game is not hard disk installable. The game can only be booted from floppy. This is a minor inconvenience but will be rectified in future revisions of the game. As a matter of fact, Avalon Hill has advised that in the fourth quarter of 1992 a hard-disk installable game and new manual will be released. But the only way that you will be able to upgrade is by sending in your warranty card.

From the main screen you make decisions on the type of game that you want to play. The first option deals with the "Deployment Limits." Here you are given the ability to forget about or enforce Deployment Limits, meaning that a specific number of units may be forced to be deployed in a country. If you do not want to be constricted by this rule, you can toggle the option off and you can then deploy your units freely within your legal territories.

The second option deals with who your opponent will be. You can choose from another human opponent or from a computer opponent. The artificial intelligence built into Third Reich is no pushover. It will provide you with a challenging game. However, there is nothing like a human opponent to tax your strategic thinking. Speaking of human opponents, Third Reich is tailor-made for "Play by Mail" gaming. The save-game-data format for all versions of the game will be identical. This means that the IBM version will be able to exchange files with the Amiga and Atari ST versions and vice versa.

The next option deals with the speed of the computer. You can set the speed at which the computer will move from hex to hex. The slower the setting, the longer it will take to move the cursor from one map location to another.

The final choice you need to make is to decide which Scenario you wish to play. There are four scenarios from which you can choose to play. These Scenarios are the 1939 Scenario, the 1942 Scenario, the 1944 Scenario, and the Campaign Scenario. The length of each scenario varies. The shortest scenario is the 1942 Scenario and is eight turns in length. As you can imagine, the Campaign Scenario is the longest and begins in 1939 and ends when Germany is conquered. Theoretically, this Campaign game can last over seven years.

The real premise of Third Reich is centered around the use of something known as "Basic Resource Points" (BRPs). This is the economics behind which the game is played. BRPs are expanded for any major action that you perform in the game. For example, at the beginning of the Campaign Scenario all major powers are at peace. When Germany is ready to declare war it must expend BRPs. To declare war on a major power would cost 35 BRPs; while for a minor power it would only be 10 BRPs. Also, building new units or declaring offensive operations on a front would expend BRPs. Each power, minor and major, has a BRP value. As you conquer territory and achieve objectives, that country's BRP total would be added to your annual BRP total. Therefore, the more countries you conquer the more BRPs you will have. The more BRPs you have, the bigger army you can build. The bigger army and navy you build, the more countries you can conquer. As you can see, it is just like real life in that you must find the balance between the military and economics of the situation for your current involvement.

Third Reich is identical in play to its boardgame brother. While there are differences, they are so minor as to be trivial. The game is played sequentially in player turns. Each play turn is subdivided into an Option Selection, Movement, Combat, Constructions, and Strategic Redeployment phases. Once each player has completed these phases a single turn is recorded. The player's turn flows so smoothly as you progress from turn to turn that you can lose all track of time enjoying this game.

Computer Third Reich is not a game for everyone. Admittedly, this is a game for the grognards; they will spend hours, days, and months playing the game. Those with a passing interest will also really enjoy the game. The games interface takes advantage of the Amiga's point-and-click interface for moving units and deciding on combats. As a matter of fact, there is no need to use the keyboard at all while playing the game. All options are controlled using the mouse.

Even though the Computer Third Reich game is easy to learn, it is difficult to master all of the game's subtle strategies. It's almost a guarantee that no matter how many times you play the game, each will be different. You will spend hours in what you think may be a perfect strategy only to have it shattered by unexpected game events.

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Loom

by Henning Vahlenkamp

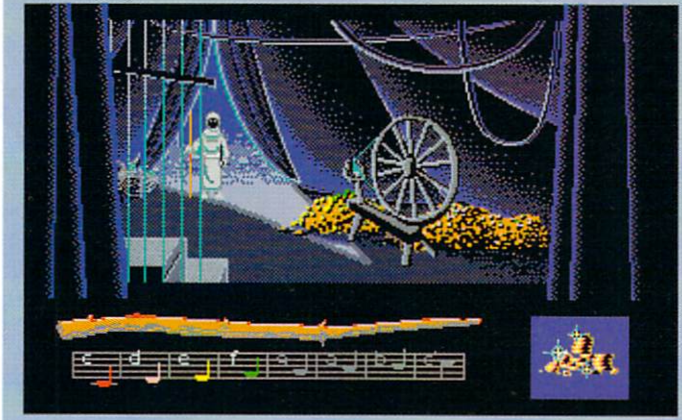
Loom ($59.95), by LucasFilm Games, casts you as Bobbin Threadbare, a 17-year-old boy born into the Guild of Weavers during the Age of the Great Guilds. The Weavers had the power to weave not only cloth, but also magic and the fabric of reality held together by their Great Loom. Now they've disappeared into thin air, and a chaotic power leaves the universe hanging on the brink of apocalypse. It's up to you, an outcast whose birth from the Loom was thought a bad omen, to find out what happened and to prevent the impending disaster. While the story sounds unusual, its originality gives the game much of its charm.

When you begin, you're given a choice of three difficulty modes: practice, standard, and expert. Practice is the easiest, and expert is the hardest, rewarding you with a bonus animation towards the end of the game. Next, you must identify sequences of notes from the Book of Patterns, serving as manual copy protection.

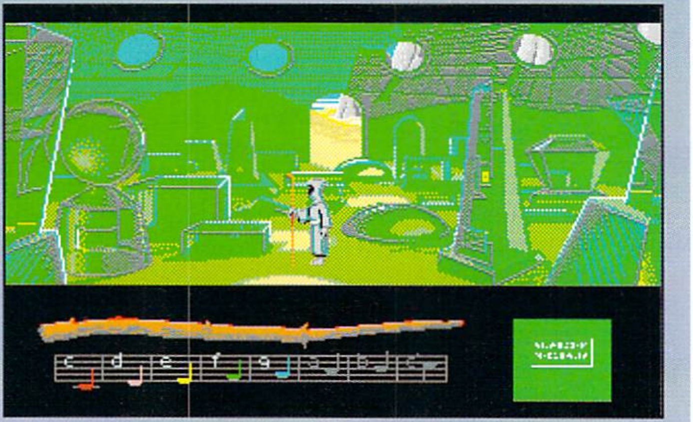
Unlike other Lucasfilm releases—*Indiana Jones and the Last Crusade, The Secret of Monkey Island*, etc.—there's no command menu at the bottom of the screen to guide your actions, and there's no inventory to manage. Instead, the game works entirely by clicking on objects on the screen. This would be great if it didn't limit your activities as much as it does. Conversations with other characters all happen automatically, and there aren't a whole lot of objects to interact with anyway. Plus the gameplay is fairly linear, so you can't stray very far from the correct path.

Fortunately, the elegant magic system—a central element of Loom—helps take your mind off these problems. You cast spells, known as drafts, by clicking on parts of your distaff corresponding to certain musical notes. Of course you must find the distaff first! Initially your draft repertoire and the notes you can play are quite limited. As you progress in the game, however, more powerful drafts and more notes reveal themselves. The Book of Patterns describes all possible drafts, although you'll need only a fraction of them. Magic is used extensively, involving most objects.

The minimal violence is another significant feature. While many games assault you with death and destruction, Loom steers a different course. The focus here is discovery and puzzle-solving, not killing enemies. This will undoubtedly appeal to parents of young children and to those turned off by violent computer games.



Since the game was ported directly from the IBM version, the graphics are only 16-color EGA quality—acceptable nevertheless. They manage to depict your surroundings effectively. The music, on the other hand, fares much better. The Tchaikovsky soundtrack is absolutely enchanting and very appropriate, drawing you into the game. The detailed, sometimes complex animation also scores highly, but gets noticeably slower as complexity increases—at least on unaccelerated Amigas. Occasionally a long animated cut scene, which you can only watch, appears to reveal plot developments.



Loom ships on three unprotected disks and is completely hard-disk installable. Thanks to efficient disk access, playing from floppies won't drive you mad. In addition to the Book of Patterns, you get a red gel to aid the protection check, a slim game manual, an Amiga reference card, and a 30-minute audio cassette! A novel idea, the superbly produced cassette provides a lot of background and sets up the story nicely. Although the game runs on any 512K Amiga, 1MB is needed for the music and full animation. Loom supports even more memory for storing previous scenes.

Apparently the designers don't want you to multitask Loom, since you're zapped back to the game screen whenever you try to access the Workbench via LeftAmiga-N. Oddly enough, it uses two identical screens. AmigaDOS 2.0 users can get around this by pulling down both screens using the LeftAmiga key and the left mousebutton. Users of 1.2 or 1.3 will have a much tougher time getting back to Workbench. Amiga users can do without this sort of irritation, as LucasFilm should enable proper multitasking.

Despite its shortcomings, Loom is a good game indeed. The refreshingly different story proves to be the main selling point. It's easy to become engrossed in the game, wanting to find out what happens next. By the way, the ending, which I won't reveal here, satisfyingly wraps up the story. While it may not pose much of a challenge to experienced players, novices will surely appreciate the simple interface, uncomplicated puzzles, and the fact that Bobbin can't die or get hopelessly stranded. Nevertheless, anyone looking for a lively, entertaining adventure should give Loom a try.

Ork

by Henning Vahlenkamp

If you've been around the Amiga games market awhile you probably know the name Psygnosis is synonymous with great graphics and sound. Its shoot-em-ups have long been technical extravaganzas that really exploit the Amiga's powers, going back to the days of *Menace* and *Baal*—two classics. *Ork* ($49.95), a recent Psygnosis release, is no exception. Similar to *Leander* (*AC* V7.4), Ork features multilevel platform-oriented action, but adds a dose of role-playing too.

You are Ku-Kabul, a rather ugly little beast who happens to be an aspiring Heyerdahl star cruiser captain. As a final test of your abilities, your superiors beam you down to the planet Ixion where you must face a horde of enemies and solve various puzzles in order to escape. Success means becoming a captain; failure means death. Yes, the plot is trite and hardly original. Then again, who needs much of a plot in a shoot-em-up anyway?

While primarily an action game, Ork has some role-playing elements. During play, you collect various objects; puzzle-related ones are maintained in an inventory list at the bottom of the screen. Puzzles basically consist of things like finding keys to open locks to get treasures to give to guardians of exits, and so on. There's also ammunition for your laser cannons, fuel for your rocket pack, and energy for you. Computer terminals located in each level are essential to success. From a terminal, you may analyze objects in your inventory, scan your position in the surrounding area if you have the scanner, check your statistics, as well as load and save games in progress. This last feature plus the pause button are welcome additions.

You control Ku-Kabul's movement via joystick. Walking and jumping are straightforward, except navigating small platforms without falling is a bit tricky. As in Leander, which provides more precise control, in Ork you can move your character during a fall—and falls don't cause damage. Although you don't have it, the ability to duck under enemies and enemy fire would help in many situations. Energy is measured by a tiny oscilloscope at the top of the screen; when the line goes flat, you die. The manual claims you get only one life, but the game gives you three chances to continue after death—the equivalent of four lives.

As I mentioned, graphics and sound are excellent, as you might expect from Psygnosis. The detailed environment of Ixion has an "organic" appearance, making you feel like you're on a living planet. Plus you get silky smooth, three-layer parallax scrolling. Animation is up to the usual standards, but the larger enemies aren't animated very much. The hi-tech sampled soundtrack, which only plays in the intro, scores well. It would've been nice to hear some music during gameplay too, instead of just sound effects.

Both disks are copy protected as usual—meaning no hard-drive installation. On top of that, you must enter codes from the manual upon booting the game. Support for only one disk drive provides another irritation. Ork runs on any 512K Amiga and supports Kickstart 1.2 - 2.0. A concise manual adequately explains everything, giving you a few clues as well.

In brief, Ork is fairly good as shoot-em-ups go. It has many technical merits aside from some problems, but does little that many others don't do, except perhaps for the role-playing which is barely enough even to be called role-playing. Difficulty is above average, and better character control would definitely improve this game. While Ork isn't Psygnosis' best effort, Psygnosis fans will probably like it anyway.

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COMDEX Fall '92

Las Vegas, Nevada, November 16-20, 1992

Las Vegas, Nevada, was once again the host to COMDEX as more than 135,000 people visited over 2000 exhibits by companies from around the world. Commodore's presence, at this MS-DOS dominated event, was confined to the Multimedia Showcase exhibit, which was billed by the Interface Group, COMDEX organizers, as the world's largest exhibition of multimedia products.

Commodore used their area to display some of the very best Amiga products and third-party vendors available, as well as to introduce the Amiga 1200. Special emphasis was placed on both the new Amiga 4000 (see *Amazing Computing*, November '92) as well as the Amiga 1200 (see page 48 of this issue). Both computers offer users the new Advanced Graphics Chip Set with a variety of high-resolution displays, AmigaDOS 3.0, CrossDOS, and more.

Commodore's booth was filled with a variety of companies and applications that showcased the Amiga's multiple talents. From the new Amiga 4000 to CDTV, CBM displayed the multimedia aspects of their machine and its capabilities.

Great Valley Products demonstrated their new G-Lock genlock device for all Amiga platforms. The small black box is completely software-controllable. It combines the best low-cost solution for genlock needs as well as several added bonuses. The G-Lock can accept two composite Y/C, RGB, or YUV outputs at all times. The parameters are adjustable for brightness, contrast, saturation, hue, sharpness, filtering, and gain. Audio support is also included through two audio inputs which can be switched or mixed and the output adjusted for bass, treble, and volume. PAL and NTSC versions, as well as the ability to convert SECAM video sources to PAL, make the G-Lock a multinational video product. With its simultaneous composite, Y/C (S-Video), and RGB output (RGB can be switched to provide YUV—M-II/BetaCam—output), the G-Lock offers an assortment of features not available on other genlocks at much more than its $449 suggested retail.

In addition, GVP's PhonePak VFX, a voicemail and fax system for the Amiga 2000 and Amiga 3000 was on display. The $449 device can combine both fax and voice information in a single call. PhonePak allows users to send a fax and attach a voicemail note to the entry. The system, designed for business and home use, allows you to create a voicemail menu and multiple mailboxes. It will even transfer calls using Centrex™ compatible lines. Faxes can be sent from the system by either scanning them on an attached facsimile machine or originating on the Amiga.

Digital Micronics, Inc. displayed their Digital EditMaster™ full-motion JPEG technology card. Retailing for $2495, the Digital EditMaster supplies real-time video capture with NTSC, PAL, and SVHS video to a standard Amiga hard drive at 30 frames per second (PAL is captured at 25 fps). Animation can be stored in compressed format by frame and then displayed in real-time and recorded to tape. The system supplies editing in a non-linear format which allows editing of frames and portions of the video without interference with other parts of the video. It works with DMI's Vivid 24™ as well as audio boards from SunRize Industries. This allows editing of both video and audio tracks.

Thousands flocked to the fall COMDEX to see all the big names and latest innovations in the computer industry.

Digital Micronics also displayed their Vivid 24 Color Graphics Coprocessor card. The Vivid 24 is a high-resolution graphics-rendering engine for the Amiga 3000. The board features 24-bit vcolor graphics, 8-bit Alphs channel, 2084x2084 interlaced resolution (1280 x 1024 non-interlaced), four graphics math coprocessors, and a 40MHz TMS34040 Graphics Processor. Aslo available are 16MB of video memory and 8MB of program memory. The resolution is user programmable.

Creotec featured their VidDISC interactive multimedia system. VidDISC is a video/audio-based interactive informational environment which provides color still and motion video with synchronized and continuous digital audio in multiple languages. VidDISC features a simple and consistent interface designed for the non computer user. It offers frequent opportunities information in-depth by means of interactive visual and auditory simulation tools. VidDISC uses CRTV as its delivery system. Creotec also displayed their VidDISC Authoring System for creating VidDISC interactive multimedia applications with CDTV (available last quarter 1992). Creotec combines VidDISC with CDTV to offer companies high-quality interactive CD-ROM multimedia applications. Creotec handles all aspects of the production process or can provide you with an on-site license for the VidDISC Authoring System so you can do the production in-house.

SunRize Industries showed their AD516 audio card. The AD516 gives you 8 tracks of sound, plus a time code reader and a DSP chip on one card. Included with the AD516 is Studio 16 version 2.0. The AD516 hardware provides stereo in/out connectors, and a SMPTE jack. It is as simple as plugging in your sound source and recording in stereo directly to hard disk, with 16 bits at sampling rates up to 48,000 samples per second. The AD516 also allows 8-track playback directly from the hard disk.

SCALA, Inc. displayed their multimedia presentation tool, SCALA. An easy-to-use, interactive presentation system, SCALA makes its possible to create presentations, slide shows, interactive informational programs, or self-running information displays. Specially designed backgrounds, sounds, animation, fonts, special effects and a wide assortment of wipes, fades, and scrolls are available to make your presentation eye-catching. Output can be run to the screen or to different media for video presentations and effects.

Nickelodeon was also well represented with their Nick Arcade show. The Nickelodeon people had several Amigas and television monitors running to demonstrate the smooth graphics and genlock effects created with the Amiga for use on the Nick Arcade program. Video clips showed actual footage of the contestants as they played the game by moving through an Amiga-generated game. The contestants, running through a set constructed to match the game graphics and painted blue to disappear with the genlock, appeared on the screen as an integrated part of the computer game. Nickelodeon uses genlocks, Amigas, and the Mandala System to create a strikingly different style of children's television.

PCMCIA from New Media Corporation

The California-based New Media Corporation has developed a fast RAM card for use with the A600 and A1200 Amigas via the PCMCIA slot. The credit-card sized PSRAM IC Card offers up to four additional megs of FAST RAM. Adding memory to the Amiga is as simple as plugging in the card. No software or hardware configurations are required. At power up, the system automatically recognizes the card as FAST RAM and includes the PSRAM card in its FAST RAM memory map. The New Media card is expected to be more than three times cheaper than other PCMCIA cards available for the Amiga. The U. S. pricing for the PSRAM card is $240 for the 2MB card and $385 for the 4MB card. The cards are available for the Amiga 600, 600HD, and A1200.

PCMCIA products were displayed in a separate section of the show. New products range from tiny fax/modems to 40MB hard drives. All of these products fit the PCMCIA standards. This means that every device is no larger than a credit card.

PCMCIA slots are currently available on the new Amiga 600 and Amiga 1200. While these Amiga slots are type 2 compatible, only New Media Corporation has released any product specifically for the new Amiga computers.

New Media Corporation
Irvine Spectrum
15375 Barranca Parkway, Building B
Irvine, CA 92718
Inquiry #270

MS-DOS was once again the major platform exhibited and supported in the show. There was no wonder that the largest booth was owned by MicroSoft, the creators of MS-DOS. What was a surprise was the sheer size of the MicroSoft booth which covered over 26,000 square feet on the main exhibition floor. This does not take into consideration the meeting rooms, seminars, and other facilities that the Redmond, Washington, software company held.

Top: The Nickelodeon display in the Commodore booth. Above: Crowds gather around the PC Card booth to see their unique advances in PCMCIA technology for the Amiga 600 and 1200. Left: Digital's DECtouch touch-screen interface.

Although MicroSoft's size was extreme, several other vendors strove for maximum attention. Intel brought steel beams into the convention center and built a large area that looked like a city of skyscrapers, while companies such as IBM and Apple created large areas of multiple display sections that attendees were constantly wandering through. The total effect gave many COMDEX attendees a sensory overload.

While Multimedia, portability, and Windows were major themes throughout the COMDEX, video was also a major new area of interest. Apple Computer announced a QuickTime for Windows while MicroSoft and Intel announced MicroSoft Video For Windows (subtitled Digital Video Software). These were matched with a large variety of programs and support hardware.

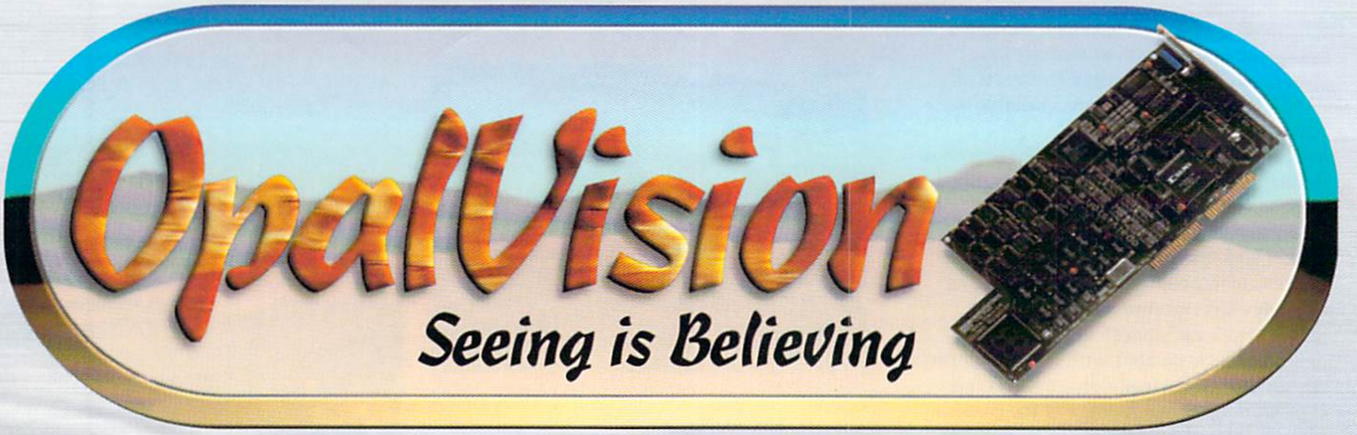
Brown Waugh Publishing introduced Studio Magic in a theater-style setting to standing room only crowds. Studio Magic is a video production system for the IBM world. It features composite or S-Video input, still-frame video capture, full motion video capture, graphics and text overlay, and a variety of other familiar video editing and production effects.

Digital Equipment Corporation displayed a unique touch-screen system which brings touch capability to any computer monitor. The DECtouch Input Device lets the user interact with computer applications simply by touching the monitor where the information is displayed. DECtouch doesn't rely on membranes or special screens, but rather on force measurement sensors located in a box, about the size of a notebook, that sits under the monitor. The sensors measure both the location of the touch and the pressure exerted. DECtouch supports any monitor from 12-inch to 19-inch, under 90lbs. It has a resolution of 40 touch-points per inch and 256 different pressure levels.

Is It All Worthwhile?

The large crowds, long lines, overbooked flights and hotel rooms, as well as surly cab drivers may cause many COMDEX attendees and exhibitors to pause and ask why they are there. Yet, COMDEX, especially the Fall COMDEX, is the one major event geared specifically to discovering the new areas of computing. It seems odd that one of the major new discoveries at this show is video, something that has always been a strong tool in the Amiga community.

•AC•



The Reviews Are In. OpalVision Sets a New Standard of Excellence

"Undoubtedly the finest, most professional paint program to arrive on the Amiga, OpalPaint has at one bound caught up with the best Macintosh software, and set a new, much higher standard for other Amiga packages to emulate."

—Brian Larkman, Amiga Format Magazine, England

"In even its first release, OpalVision is awesome! If you've been sitting on the Amiga's 24-Bit sideline, waiting for the technology to mature, the time to act is now!"

—Tony Gomez, Camcorder Magazine, USA

"OpalVision is exciting for everyone in the Amiga community and will enjoy a long and successful life. Professional quality at this price can't be turned away."

—Gary Fenton, Amiga User International Magazine, England

"OpalVision is an amazing delight. It comes closer to simulating a classical painting environment than any other hardware or software combination I've tried. It's great! "

—Hank Tucker, Producer for Disney TV Animation

"I asked both a traditional artist unfamiliar with computers and a video artist familiar with Amigas and other computers to try OpalPaint. The verdict was unanimous—*brilliant*—and who am I to disagree? The best fun I've had for ages."

—Gary Whiteley, Amiga Shopper, England

OpalVision News Flash!

OpalAnimMATE Is Here!

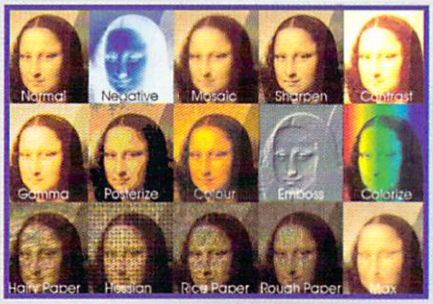
Our powerful new animation player lets you run OpalVision animations at rates of up to 60 frames per second. It works in 8, 12, 15, 18 and 24-Bit modes and features selectable screen sizes from 32 x 20 to 768 x 286 pixels. Features an easy Workbench interface, dynamic DMA allocation for best frame rates on slower (68000-based machines), and will play animations directly from a hard drive. Our delta compression feature creates small files and fast playback rates.

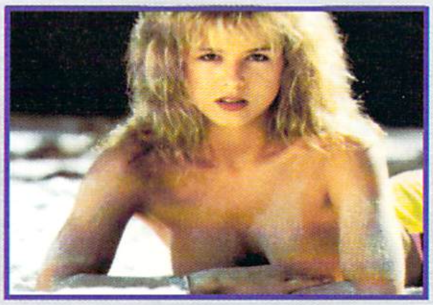
Amiga Developers Create OpalVision Software:.

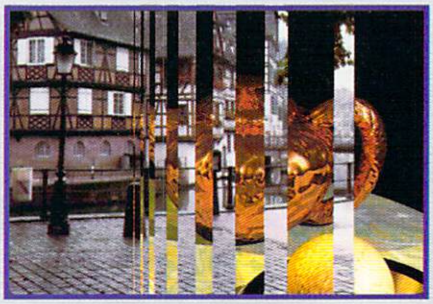
These are just a few of the titles that are already available or that will be released very soon:

ASDG - Art Department Professional and Morph Plus
Adspec Programming - Aladdin 4D
Black Belt Systems - ImageMaster
SCALA - MultiMedia 200 and InfoChannel
RGB Computer & Video - AmiLink Video Editing Products
Amazing Computers - Transporter single frame recording software
Texture City - Texture City 24-bit image libraries
Progressive Peripherals and Software - 3D Professional

OpalVision also works with A4000 and AA Chipset!







The OpalVision Main Board

- An internal card which operates in any Amiga computer with a video slot.
- A true 24-bit frame buffer and display device with 16.8 million colors available for every pixel.
- Uncompromised, 24-bit higher-than-broadcast-quality, crystal-clear images.
- Standard Amiga graphics and animations can appear in front of or behind OpalVision images on a pixel-by-pixel basis.
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- VLSI graphics coprocessor enables resolution changes, stencil modes, a host of transition effects and smooth scrolling between screens.
- "Palette-Mapped" design updates screen colors in real-time. Fade pictures in and out and change their palettes on the fly.
- Double buffered full 24-bit, 15-bit and 8-bit true color modes, 24-bit and 8-bit palette-mapped display modes, Dual Playfield and Overlay Priority stencil modes.
- Priority mask definition specifies foreground/background areas in 24-bit images.
- Microcode graphics processor for system control, priority switching, hardware scrolling and panning.
- 20ns video switch to freely mix Amiga and OpalVision graphics.
- Expansion connectors for available Framegrabber/Genlock and Scan-Rate Converter hardware modules.
- Expansion socket for the "Roaster Chip," a live video special effects processor.
- Automatically self-configures for NTSC or PAL operation.
- 24-bit RGB output with video bandwidth >7 MHZ. Equipped with 1.5 MB of display RAM.

OpalVision Software

Every OpalVision Main Board includes a full range of software to let you start creating graphics, animations and presentations immediately:

OpalPaint

Everyone is excited about OpalPaint. In fact, nearly everyone who's spent any time using it says it's the best paint program on the Amiga. And with good reason. It's Fast. Real-time. Full 24-Bit. OpalPaint gives you complete control over OpalVision's 16.8 million color palette. Includes a full-range of drawing tools and an expandable library of image-processing modes with adjustable parameters, complete texture-mapping capabilities, transparency and color gradients, multiple work modes, nozzle brushes, pre-defined palettes and many other comprehensive tools. Unique and powerful features like real-world "Artist's tools" and paper types, multiple stencil types, virtual memory support and compatibility with the pressure-sensitive Wacom drawing tablet provide a level of support for artistic creativity never before available on the Amiga.

Also included are **OpalAnimMATE** (see News Flash on previous page), **Opal Presents!**, an icon-driven presentation program, **OpalVision Hot Key**, a powerful and very useful image display utility and the world's first 24-Bit game, **King of Karate.**

The OpalVision Main Board is the core of a complete video system.

Enhancement Modules are on the way which add exceptional graphic and video features to the OpalVision Main Board. Create a complete video production studio by adding some or all of the OpalVision Expansion modules. The modules connect directly to the Main Board without tying up Amiga slots.

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24-Bit real-time framegrabbing and better-than-broadcast-quality genlocking with S-Video, RGB and composite inputs and outputs. Real-Time video effects, transitions and color processing.

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Complete video switching capabilities. Includes four S-VHS, four composite and one RGB input. Three outputs: Composite, S-Video and RGB. Combine two live video sources, 24-Bit OpalVision and Amiga-generated graphics.

OpalVision Scan-Rate Converter

Perfect for desktop publishing and graphic arts applications. Generates flicker-free 24-Bit and Amiga graphics. Can also be used as a separate 24-Bit frame store for multimedia applications.

OpalVision Roaster Chip

Amazing, complex Digital Video Effects. Real-time processing of live video. "Picture-in-Picture" capability. Includes pre-made effects and provides for the creation of custom effects.

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Circle 147 on Reader Service card.

Feedback

Letters to the Editor

edited by Paul L. Larrivée

CLI Concerns

Over the past several months I have been reading Keith Cameron's "cli directory" with growing concern. There is a disconcerting amount of information which could be seen as inaccurate, incomplete, or misleading.

Many of Mr. Cameron's readers are undoubtedly CLI beginners and some could well take what he writes on faith. I suggest that the utmost caution needs to be exercised to present accurate, complete, and well-explained information. I hope that the editors and Mr. Cameron will more critically review subsequent columns before they are published to the benefit of both *AC* and its readership.

At the end of a mini-tutorial in the 7.9 issue, Mr. Cameron states concerning the *rename* command:

> ...you might wish to rename certain AmigaDOS commands. This is especially true if you use another computer, such as MS-DOS...you could rename certain AmigaDOS commands so that they are the same as their MS-DOS counterparts, such as changing DELETE to DEL. This could reduce the confusion that sometimes results from using two systems.

While I agree with the idea of making things more uniform and less confusing, I take issue with the recommended method. First, renaming AmigaDOS commands is a totally unnecessary and dangerous practice. It's inadvisable for at least four reasons:

1. The scripts of commercial, public domain, and shareware programs won't find the commands if they've been renamed, especially true of installation scripts which utilize the *copy* command to move files from floppies to the hard drive.
2. Any command that's been changed must be known and remembered by all users of the machine.
3. If a command like *makedir* is renamed to the MS-DOS equivalent, the standard AmigaDOS v1.3 start-up sequence will fail unless the *makedir* command within it is also changed.
4. By renaming AmigaDOS commands, you also make it more difficult to correlate them with their documentation. For example, if you forget that you changed *delete* to *rm*, then you won't find *rm* in Amiga manuals.

The practice of renaming AmigaDOS commands is also unnecessary because the Amiga shell provides a safer way to achieve the same results with its built-in *alias* command.

The *alias* command allows the user to assign pseudonyms for commands without renaming the originals. These alternate names, such as *del* for *delete*, are saved in the shell-startup file in the 's' directory. A simple example is *alias cp copy* to give the *copy* command the pseudonym of *cp*. To make aliases permanently available to any shell the user opens, he must add them to the shell-startup script using a text editor or word processor and saving as an ASCII file.

In the 7.10 issue, Mr. Cameron addressed the topic of public domain and shareware programs. He reviewed using the *type* command or shareware programs like *Less* and *MuchMore* for viewing document files. It would have been prudent to forewarn readers about compressed files. Trying to use *type*, *Less* or *More* with compressed files would only yield gibberish.

Mr. Cameron also discussed archival programs and told the readers that one of the popular ones is LHARC. He indicated that archived files have a readily identifiable suffix and gave the examples of .ZOO and .ARC. Nothing wrong here except that he should have also informed readers that the suffix is not always self-evident as in .LZH for LHARC archived files.

In concluding his section on archivers, Mr. Cameron advised: "Once you unpack programs...I suggest that you run programs from the CLI. To do so, just use the RUN command followed by the program's name."

At best this advice was misleading and poorly given. In all cases I suggest that first one read the supplied documentation. A blanket suggestion to run a program from the CLI and to do so in a background, (that is, run) mode is not always the best advice.

There are many CLI programs which detach themselves from the shell without needing a *run* command. Some such programs will crash the machine if you try to *run* them. Another reason for reading the docs is that many—if not most—CLI programs require parameters or command-line arguments to be typed after the command name for the program to function properly.

Finally, many shareware and public domain programs provide a WorkBench interface and icon. For some of these programs, a double-click of the mouse is the preferred way—sometimes the only way—to correctly start them.

I hope that my comments are taken in the light given, as constructive criticism. I would be the first to acknowledge how difficult is is to write without a flaw and equally how easy it is to criticize. Yet I feel that it's worth the effort required, especially when addressing beginners who can be inadvertently mislead.

Marvin Bero
Glenview, IL

Following is the reply by Keith Cameron, the columnist of "cli directory."

Mr. Bero has raised some valid points, which I will attempt to address individually. The focus of my column is exclusively CLI so that my primary interest is in using the command line and the AmigaDOS commands/programs that are standard on a Workbench disk. Most of my readers are new to the Amiga environment and have probably never used any kind of DOS. New users typically purchase a stock 500. As they learn, they then add RAM, external drives, and finally hard drives. This is the route I myself have taken and the background I write from.

Mr. Bero's comments on the use of the RENAME command are well taken. My discussion of this command should have been more complete. However, I was simply trying to present the possibilities of what could be dome with this command rather than what should be done. My use of the modal "could" instead of "should" in the article clearly indicates this. Likewise, in summarizing the use of this command, I omitted this suggestion entirely, thereby downplaying it. Finally, in a column I submitted to *AC* more than a month before receiving Mr. Bero's letter, I described the use of the ALIAS command. I'm in complete agreement with Mr. Bero that in such situations the ALIAS command is preferable to RENAME. Thanks for your observations here, Mr. Bero!

Second, Mr. Bero says that I should have warned readers about documentation files which require PowerPacker to use. Once again, his point is well taken. My concern in this article, though, was to demonstrate how to examine text files by using those standard Workbench programs—ED, TYPE, and MORE are standard on version 2.04. That is why I emphasized TYPE and, to a lesser degree, MORE. I did not review ED for it had already been done in my column months ago. Further, I really didn't review shareware programs like *Less* and *MuchMore*, as Mr. Bero states. I simply mentioned them in passing as examples of shareware text viewers. Discussing them all would be nice, but there are just too many.

Third, I probably should have metioned that ".LZH" is the suffix for LHARC. When I mentioned the ".ZOO" and ".ARC" suffixes, I was simply giving examples, not trying to provide an all-inclusive list.

Fourth, I have not experienced problems with programs crashing when executed using the RUN command, as Mr. Bero indicates. As an avid CLI user, I am interested in having control always revert to my Shell window; therefore, I almost always use the RUN command. If a program were to crash using this command, I would make a note of it and refrain from using the command with that program in the future. Mr. Bero suggests that users read the documentation before trying to run programs. I stated this myself on page 45 of the very article he mentions: "To learn what a program is for and *how to operate it* [italics added], you need to read the documentation." If readers have experienced any problems using RUN, I'd like to hear from them, as there may be good material for a column.

Finally, many shareware and public domain programs do provide a Workbench interface and icon, but since this is a column on the CLI, that is its concern.

Mr. Bero's comments are taken constructively; in fact, I do mention my lack of expertise in certain areas and would like to hear from readers. Yes, sometimes systems do crash and other problems occur. That is how we learn. Much of the learning I've acquired comes from other Amiga users, such as Mr. Bero. I'm sure some of the fine points he makes come from his own experience. With this in mind, I welcome all comments.

Keith Cameron
Ozono, TX

PARNET Not PD

I enjoyed reading your article about my freely redistributable Amiga-to-Amiga networking file system, PARNET. I hope that many Amiga owners "discover" it through Mr. Steuber's article. However, I felt compelled to point out a couple of discrepancies in the article.

First, PARNET is not "public domain" as the article says. In fact, PARNET is a copyrighted work, and the documentation provided with PARNET does restrict others from redistributing it for profit. Note that distribution via the Fred Fish collection, the Hypermedia CD-ROM, and bulletin boards are allowed under the PARNET restrictions.

Second, Mr. Steuber is a little confused about who did the work. I took the basic structure of a Software Distillery file system to read the floppy drives and rewrote it from the ground up to act as a network file system instead. After NET: was written and working using my own serial port code, I added support for Matt's DNET serial port software and released it. Meanwhile, Matt had written a small assembler program that gave my application access to the parallel port for reading and writing data: parnet.device. I then modified NET: to work with parnet.device and rereleased it as PARNET.

While Matt's contribution is significant, by itself parnet.device is only a means for getting data from point A to point B, not a usable file system. Most of the PARNET effort went into the file system, not to the transport layer.

Thanks for your report and keep up the good work!

Doug Walker
Cary, NC

The following is a response by Walter Steuber, the author of "PARNET," V7.7, p. 53.

Doug Walker is a giant in the Amiga world. I have enormous respect for his contributions to my pleasure with the machine so I regret saying anything to make him unhappy.

Doug's first point, that PARNET is freely distibutable, *not* public domain, is certainly valid. Like many users, I treat these two terms as the same thing but grant there is a legal difference. I like to use the term "public domain" to distinguish a program from shareware, demoware, and proprietary material. The documentation with PARNET clearly restricts its distribution for profit, so I don't think my loose use of the term compromised Doug's proprietary interest.

Walker's second point is that I am a little confused about who did what work on PARNET. In the article I think I dance around this subject without saying anything about the specifics he raises in the letter. In other words, I don't see any conflict between what the article says and what Doug writes in his letter. I gather he feels, but too modest to say, that I gave too much credit to Matt Dillon and not enough to him. After reading Doug's letter, I still feel that the article is properly balanced as far as credit is given. This is so mostly because I had a working Dillon connection before Doug came on the scene.

Walter Steuber
Springfield, PA

A-10 Tank Killer Not Halfbrite

I want to correct a few errors in your review of *A-10 Tank Killer Enhanced*, "Diversions," V7.10. First of all, reviewer Jeff James mistakenly identifies the game's digitized backdrops as 64-color extra halfbrite screens. Actually, these screens are HAM images. It is the simulation that runs in extra-halfbrite mode. The second error is the assertion that the game requires two floppy drives or a hard drive. The game runs fine from just one floppy drive, and since all Amigas have at least one floppy, it's hard to classify needed drives as a requirement.

The third error was more of an oversight. While Rhett Anderson and I were mentioned twice in the review, the game's real programmers, Peter Heinrich and Steve Cordon, were not. Yes, Rhett and I wrote some low-level code for Amiga A-10 Enhanced, but Amiga gurus Peter and Steve wrote the game and deserve the credit.

Thanks for such a positive review.

Randy Thompson
Eugene, OR

Future Entertainment Show

5-8 November 1992 Earl's Court, London, England.

by Phil South, UK Correspondent

Computer shows are a very weird business at the best of times, but the first annual Future Entertainment Show was one of the oddest I've been to in recent years. I've spent the best part of 10 years writing about computers, and it must have been about five years since I've been to such an overpopulated, scary, and exciting show.

There were two kinds of people at the show, and one-half of them were speaking the word Genesis in hushed tones. No, the much maligned Sega game console wasn't very popular at all. The Genesis in question was the English pop band who were playing the same venue for the same amount of days and more. The main hall was divided in two by a flimsy curtain so that any time the band came on late afternoon to do a sound check, the show goers were treated to a taste of the sell-out tour by this trio of ancient popsters, and talk of tickets to their show was almost as intense as the clamour for tickets to the FES. Stand holders were auctioning Genesis concert tickets and VIP lounges had little discreet bundles of the things to use as inducements to love their product.

Polarised

The show had two sections, very much apart—the Retail Hall which was basically technical stuff and stalls where you could buy something; and the Entertainment Hall, where you could see the new games, look at the new game machines, and meet DJs from the national pop radio station, Radio 1. In fact British TV and radio were there in force, with news crews coming down from all the major UK stations, from the highbrow Radio 4 team who were interviewing people about the addiction of computer gaming, to the youth shows who were celebrating the joy of computer gaming. UK media still haven't really gotten to grips with video games, hence these simple-minded categorizations. Games software giant Ocean had a pair of huge fairground helter skelters, a laser show and one of the biggest video walls I've ever seen, and all this right inside the front door of the show! The showmanship is what struck me, something which has been sadly missing from a lot of computer shows in recent years. It was fun to be there, and kids of all ages were walking round with an almost Spielbergian look of childlike wonder on their faces.

There were another two groups of people at the show, those who were interested in Amiga or Nintendo. No other stands really had the interest as far as I could see, apart from the stand which was taking $3 off people for a go on the Virtuality VR machines. (Commodore people were moaning that they should really have Amiga stickers on them as the computers used in these systems are Amiga 3000s.) Nintendo and Amiga had everyone's attention, and more units of Super NES and Amiga 600s and 1200s were sold than almost any other unit from the likes of Sega or Atari—Atari didn't even have a stand, for that matter.

People were buying as many Amiga 1200s as they could get their hands on, and every dealer had sold out of the new Amiga by Saturday night. Stocks of SNES were clearly higher as they could still be found through Sunday, but then again I do happen to know that there are only 30,000 units of the 1200 available to UK retailers pre-Christmas. Most of these had already gone to national chains by the time the show started, but estimates of the number sold at the show range from 2,000 to 6,000 and some said even higher.

Commodore Stand

Almost everyone who came up to the stand asked one of these questions:

1. What's this new Amiga 1200 then? Can I have a brochure?
2. What's the difference between the 600 and the 1200?
3. Why is Commodore killing off all its old machines?
4. Where can I see the 4000?
5. (all of the above)

The answers to these questions are many-fold, but after the 60-70th punter you start keeping them short and sweet:

1. It's got a faster processor for greater productivity. Yes.
2. One's for games and one's for serious stuff.
3. They aren't. They just stopped making them that's all. It never hurt the C-64!
4. It's in the other hall with the serious stuff.
5. Er... sorry can you speak more slowly, I'm going deaf here.

It was the loudest show I can remember, and most of us on the Commodore stand were going very deaf by the end. Environmental health officers were going around telling stands to knock the sound down a notch or have the power pulled, that's how bad it was; and although it would lull for a while, soon the decibels were up there again making our eardrums tickle.

The 4000 was making its first live appearance, as was the newly released 1200—launched just two weeks earlier—and both machines were really pulling in the crowds. The AA chipset was one of the stars of the serious end of the show, and everyone who had 400 quid in his pocket walked home carrying a 1200, or so it seemed. The 4000 was on the stand with all the Commodore PC clones, which caused some confusion in some of the show people. It was overlooked mainly because the case looks so much like a PC that it blended in with its surroundings.

Products

In the Commercial Hall the products were being pounded out, and many big players from the UK and international markets were there. Notable by their absence were Scala UK, although they were there behind the scenes talking to Commodore I understand. GVP came over from the U.S., but in the main it was the European companies that made a splash.

GVP was showing all the new products, including *ImageFX* and *CineMorph*, neither of which is out in the UK at the time of writing. Another most impressive device was the GLock genlock device, which was doing the business to a video of the movie "Top Gun" on various big screens around the stand. The implication was that the box has a lot of hardware inside which hasn't been awakened up by software yet. Based on what I was told, this is definitely a product to watch.

Bitcon devices were showing a 256-color PC emulator running on a 4000, and at a very credible speed too considering what was being demonstrated was a game. The hardware is the same device which KCS have been marketing through Bitcon for some years, but the software keeps being upgraded to activate more features. The basic card fits into an Amiga 500, and with an adaptor into the 2000/3000/4000. AA chipset gives you 256 colors, so sure enough on those machines you can get full VGA. On normal machines you get a mere 16-color VGA. Very clever, and reasonably priced too. An A600 version was on display too, and Bitcon say they have a 1200 and are in the process of adapting the hardware to work with the DMA slot inside the new Amiga.

Power Computing were showing their range of Epson printers, and Epson personnel were on hand to give technical advice, as well as show people a leaflet based on a recent review by yours truly. They also had on hand a version of their greyscale hand scanner which does full color for $239! The scanner stores 12-bit images (at 400 dpi) for display in any Amiga resolution. The program that comes with it is able to save in a variety of formats, and edit any pictures you create. Obviously if you have a version of *Art Department Professional* then converting these nice 12-bit pictures to any Amiga format is not going to be a problem. The software supports all old and new image formats, as well as Workbench 2 and ECS screen modes. The company was also showing off their unique dual drive unit, which also features special fast copying circuitry.

Rombo was there too, showing off their new digitiser unit, the VIDI 12, which is a digitiser and RGB splitter in one, making a lot of other units obsolete, especially in this price range. Used with a color video camera on the stall, the unit was producing frankly stunning results from magazines and books on a copy stand. The software is slick and WB-2 looking, and the quality is much better than the original VIDI, although that was no slouch.

Honorable mentions: Ashcom's memory devices, very good and nice low prices; Datel Electronics, great snapshot cartridges, shame they don't work above 4MB of memory; *Just Amiga Monthly*, great Amiga mag DTP'ed in black and white on *Pro Page 3.0* and Canon BubbleJet and sold by subscription only (see below); Videk Ltd, leads for all occasions, from the Amiga to every monitor under the sun and all manner of SCART, parallel and serial cables and line switchers for bargain prices. BIG Show 1 was there on the Commodore stand for three of the four days, giving out leaflets on the A1200, A600, A4000 and CDTV, and doing a bit of PR for *Command*, the Commodore UK registered user group magazine, to which I contribute articles. On the first two days there was what I'd call the regular show crowd, busy but do-able. On the Saturday there was a deluge. Not rain, but human beings.

By 10 a.m. the place was heaving with bodies, and still more queued up around the entire building, most of whom had to be turned away. (I was standing next to one of the organizers when this news came in. The look on his face as he totted up how much money they were turning away at $8 a head was a real picture.)

Scuffles broke out after people were told they had to go home and soon the radio and TV stations were ablare with reports on how a minor riot had broken out outside the show and people were under no circumstances to attempt to go to Earl's Court. A Commodore man and I stepped outside with some difficulty to see this "riot" and sure enough there it was, carnage everywhere... actually a couple of hundred very upset people standing about looking dejected, but no fighting, no bonfires.

In fact there were so many people inside the show that in the channel going between the games hall and the retail hall there was a moment when it was wall-to-wall people, shoulder to shoulder, not moving. This was very dangerous, as at any moment a small child—of which there were thousands in the crowd, could be crushed and nobody could do anything about it. Site security had to open the side doors to let the crowd travel between the halls outside the building, which led to some security problems with the miserable masses outside. Soon the crush abated, although people are very touchy about this kind of thing since the disaster at the Hillsborough football stadium a few years ago which started in exactly the same way. But people kept their heads and no casualties, except perhaps my wits.

Conclusion

The show was a great success, from all kinds of different standpoints. Future Publishing was obviously flush with cash after the show, and this bolsters their already massive publishing empire. The punters were gleefully buying machines and software so the retailers obviously got one of the biggest boosts of the year, odd considering the state of the country's finances and the recent political upheavals. This all goes to show my theory that in a recession the only industry that prospers is entertainment and escapism. And finally, Commodore was one of the biggest winners, as they proved that more people were interested in CDTV than were interested in the small CD-I stand further down the same hall. That must give them the confidence to take Philips on head to head, in the reasonable expectation of making CDTV the CD ROM standard in Europe. (Of course rumors that the new CDTV has CD-I compatibility have yet to be substantiated, but if true, this could explain a lot.) Commodore also has the feeling that they made the right choice with the 1200, as it was undoubtedly the technical success of the show if not the commercial one. The biggest winners of all were the attendees, who got the show of their life, and a freewheeling white knuckle ride of computer entertainment to remember for quite some time.

Phil South is the UK correspondent of *Amazing Computing* and the author of two best-selling books on the Amiga, *Mastering Amiga Beginners* and *Mastering Amiga AMOS*.

•AC•

The A1200 was a big success during its U.K. debut. Vendors at the show had sold all their A1200s by the end of the third show day!

Commodore is offering these super A600 bundles to the U.K. for Christmas.

The Fred Fish Collection

Below is a listing of the latest additions to the Fred Fish Collection. This expanding library of freely redistributable software is the work of Amiga pioneer and award winning software anthologist, Fred Fish. For a complete list of all AC, AMICUS, and Fred Fish Disks, cataloged and cross-referenced for your convenience, please consult the current *AC's Guide To The Commodore Amiga* available at your local Amazing Dealer.

Fred Fish Disk 730

Term A gift-ware telecommunications program written for AmigaOS 2.0 or higher. Features include total configurability, full ARexx control, Xpr-transfer support, filetype-identification after download, cut & paste/point-and-click on screen, auto upload and download, unlimited size scrollable review buffer, solid and fully-featured VT100/VT220/ANSI emulation, optional fast atomic terminal emulation, hotkey support, powerful phonebook and dialing functions, ability to save and print the contents of the screen as IFF-ILBM or ASCII file, full overscan and screen resolution support (new ECS screen modes included), asynchronous operation and a lot more. This is version 2.3, an update to version 2.2a on disk 681. Includes full source. Because of its size, it is distributed on two disks. This is part 2 of 2. Part 1 is on disk 725. Author: Olaf 'Olsen' Barthel

Fred Fish Disk 731

FindIt A fully Intuitionised file finder. Features include search multiple drives/directories, search for file names starting with/not starting with given text, file names containing/not containing given text, file names ending with/not ending with given text, files created on/after/before/not-on given date, files containing given text, etc. Found files can be copied, deleted, viewed, or printed. Requires Workbench 2.0. This is version 1.0, binary only. Author: Gary Smith

GadToolsBox A program that lets you draw/edit GadTools gadgets and menus and then generates the corresponding C or assembly code for you. This is version 1.4, an update to version 1.3 on disk 659. Includes source. Author: Jan van den Baard

QMouse An unusually small and feature-packed "mouse utility". Was inspired by, but not derived from, the original QMouse by Lyman Epp. Features include automatic window activation (like WindX), top-line blanking for A3000/A2320 users, system- friendly mouse blanking, mouse acceleration/threshold, "Pop- CLI", click-to-front/back, "SunMouse", "NoClick", "WildStar", Northgate key remapping, and more. Requires Kickstart 2.0, but is not a commodity. Only 3K. Version 2.20, an update to version 2.10 on disk 697. Public domain, assembly source included. Author: Dan Babcock

Fred Fish Disk 732

FontViewer A program to view fonts. Features include selectable screen resolutions, outline font support (WB 2.0), ColorFont support, up to thirty fonts shown at once with each in its own window, up to three lines of changeable text for viewing fonts, use file requester to find fonts to view (WB 2.0). Version 1.2, binary only. Author: Gary Smith

MPE A compiler tool for users of the M2amiga programming environ- ment. MPE does the same job better than your batch file. You can do everything with the mouse or the right amiga key. With this Modula-2 Programming Environment you can compile, link, and run your program. When there is an error, the editor is started automatically. You can set all switches for M2C, M2L M2Make, M2Project, and M2LibLink. This is version 1.31, an update to version 1.17 on disk 703. Binary only. Author: Marcel Timmermans

PSUtils Some utilities for postscript and adobe fonts. Resetadobe (version 1.0) is a program to modify the AFM files of adobe fonts which do not appear to have the correct spacing after being generated by AFM2PFM. Postsplit (version 1.0) is a program to split a color PageStream postscript file into individual color/page files for multipass printing. PFM2AFM (version 1.0) generates AFM files for adobe fonts. T1Utils is a set of adobe font manipulation tools including a font disassembler. Author: I. Parker, D. Spencer, Ken Borgendale, Lee Hetherinton

Riff A little iff reader written in M2amiga Modula-2. Version 1.0, includes source. Author: Marcel Timmermans

RTracker A MOD player that is small, easy to use, highly configurable, follows CBM's style guide, supports automatic decompression of MODs, and more. Version 2.0, shareware, binary only. Author: Mike Manzano

Fred Fish Disk 733

AntiCicloVir A link virus detector that detects 25 different such viruses. Version 1.6, an update to verion 1.5 on disk 710. Share- ware, binary only. Author: Matthias Gutt

Cube An animated Rubik's Cube simulator, solver, and tutorial. It uses two solving algorithms, one which can be applied by a human using simple rules, and another that is too complicated to be used except by a computer. Shareware, includes source. Author: Martin Gitelson

Sushi A tool to intercept the raw serial output of Enforcer 2.8b, Enforcer.megastack 26.f, Mungwall, and all other tool and ap- plication debugging output that uses kprintf. This makes it possible to use serial debugging on a single Amiga, without interfering with attached serial hardware such as modems and serial printers. Sushi also provides optional signalling and buffer access to an external display/watcher program. Version 37.7, binary only. Author: Carolyn Scheppner

Termcap A port of the GNU termcap library for the amiga. Termcap is a library of C functions and a database of terminal descrip- tions, that allows an application to send control strings to terminals in a way independent of the specific terminal type. Author: Various

Fred Fish Disk 734

PowerVisor A powerful machine language debugger and system monitor de- signed for the serious Amiga programmer. PowerVisor supports all Amigas and all processors (including the 68040). There are two versions, one for AmigaDOS 2.0 and one for AmigaDOS 1.3 (or 1.2). Among many other things, PowerVisor supports symbols and ARexx (with 215 different ARexx commands). It is also very customizable. The AmigaDOS 2.0 version supports online help with 'AmigaGuide' and is installable with the 2.0 Installer. This is version 1.20. Source for some examples is included. PowerVisor is shareware. Registered users can order the complete PowerVisor source. This is part 1 of a two part distribution. Part 2 is on disk 735. Author: Jorrit Tyberghein

UCD A utility for changing the current directory that scans a disk and builds a file containing information about the directory structure that makes it possible for UCD to change directory to any directory in the scanned volume by simply naming the directory without pathname information. Version 1.0, share- ware, binary only. Author: Uffe Holst Christiansen

Fred Fish Disk 735

PowerVisor A powerful machine language debugger and system monitor de- signed for the serious Amiga programmer. PowerVisor supports all Amigas and all processors (including the 68040). There are two versions, one for AmigaDOS 2.0 and one for AmigaDOS 1.3 (or 1.2). Among many other things, PowerVisor supports symbols and ARexx (with 215 different ARexx commands). It is also very customizable. The AmigaDOS 2.0 version supports online help with 'AmigaGuide' and is installable with the 2.0 Installer. This is version 1.20. Source for some examples is included. PowerVisor is shareware. Registered users can order the complete PowerVisor source. This is part 2 of a two part distribution. Part 1 is on disk 734. Author: Jorrit Tyberghein

Fred Fish Disk 736

EasyStart A program to start other programs in a very easy way. It can start programs with a popup menu, a popup screen, with menu items in the WorkBench menu, with a window containing gadgets, and more. Version 1.12, binary only. Author: Andreas Krebs

InTime A program to overlay a 'timecode' onto videotape while making working dubs of original footage. The display consists of a tape number, hours, minutes and seconds. It is designed to be used as as aid in logging and finding sections of a video tape. The display can be in any shown in any font. This is version 1.2, binary only. Author: Gary Smith

MegaD A directory utility with multiple directory windows so you may copy from multiple sources to a single destination, copy from one source to multiple destinations, or copy from multi- ple sources to multiple destinations. Full font support, full screens support, application icons, application menus and ap- plication windows support. Includes 126 page tutorial and 47 page user guide. Other features include 72 user defined com- mand gadgets with simple keyboard equivalents, and multiple filters on directory listings. Version 2.00, binary only. Author: John L. Jones

Fred Fish Disk 737

AMPlotDemo A demonstration version of a commercial graph plotting program designed for publication quality plotting of scientific data. The demo allows datasets no larger than 10 datapoints and will not create hard copy plots. Version 2.0, binary only. Author: Andrew Martin, SciTech Software

ANSI A small CLI utility to convert C source between ANSI and Kernighan and Ritchie function definition formats. Also allows generation of prototypes. No Amiga extensions and should be portable. Version 1.6, an update to version 1.0 on disk 598. Includes C source. Author: Andrew Martin, SciTech Software

DBuff Source code with a small demo to implement double buffering by adding a second ViewPort to an Intuition screen. Version 1.3, an update to version 1.0 on disk 599. Includes C source. Author: Andrew Martin, SciTech Software

PrLabel A utility to print laser printer labels. Support 3x8, 2x8 and 2x7 A4 label sheets. The program may easily be modified for other formats. Also serves as a demonstration of using STSLib for gadgets and menus. Version 1.2, an update to version 1.1 on disk 599. Includes C source. Author: Andrew Martin, SciTech Software

Fred Fish Disk 738

CanonBJC Color printer driver package for Canon BJC 800 and Canon Epson emulation printers. Supports Epson 24/48 pin and BJC emula- tion compressed native mode. This driver is not limited to 16/4096 shades/colors. Includes font independent preferences programs for controlling additional options, free definable dither routines (many are included), ink compensation, color adjustment, timeout, and more. Version 1, binary only. Author: Wolf Faust, Distribution by Canon Europe N.V.

CanonStudio Prints IFF pictures from disk in 24/8 bit accuracy on normal WB printer driver. Pictures can be printed in any size (poster function) without need for much memory. Supports most IFF formats (incl. EHB, HAM6, HAM8, IFF24). Provides a nice font independent user interface, free definable ordered dithers, error diffusion and blue noise dithers, ARexx Inter- face, color adjustments, ink compensation, printer spooler and more. This version is limited to Canon printer drivers. Version 1.2, shareware, binary only. Author: Wolf Faust

Galaga A space "blast-em" game with over 300 different animation frames in 16 colors, many levels, end of stage nasties, bonus levels, kamikaze raids, etc. Version 1.4, binary only. Author: Geert Coelmont and Romain Voes

Fred Fish Disk 739

Deft A program to change the default tool of project icons. Will search through a disk or directory, finding all icons that contain a specified default tool and change that tool to a different one. It is useful for changing the default tools of all the doc files on disk to your favourite text reader, for example. Version 1.0, binary only. Author: Gary Smith

Hyper Will lead you through documents that are written to be used with the legendary 'Am*gaGu*de' from Commodore. An ARexx port gives access to it from other applications. Requires OS 2.0. Version 1.0, shareware. Author: Bernd (Koessi) Koesling

IconAuthor A replacement for IconEdit2.0. It can transform IFF images or brushes into resized 2-BitPlane brushes or icon files that match the WorkBench2.0 colors. Online help is available via 'Hyper'. Demo version limited to processing provided demo image only. Requires OS 2.0. Version 1.0, shareware, binary only. Author: Bernd (Koessi) Koesling

InScript A program for producing video titles. Features include fully editable text entry, IFF pictures as background, unlimited number of fonts loaded at one time, up to 99 undos, outline font support (WB 2.0), text styles (shadow, outline, etc) can be named and saved, toolbar for common operations, playback script maker with transitions between pages, adjustable color cycling, low, high and interlace resolutions with overscan, adjustable kerning, and comprehensive text alignment options. InScript can save InScript data, IFF pictures or animation files. At least 1 mb memory required. Version 1.1, share- ware, binary only. Author: Gary Smith

Keti Prints 3.5" disk labels (71.5 x 69.6 mm) on a NecP6 from a 15 line ASCII file. The first line will be the headline (max 25 chars), 14 textlines (max 44 chars) may follow. Requires OS version 2.0. Includes source and DME macros. Author: Bernd (Koessi) Koesling

WKSC Workbench Keyboard Shortcut Changer is a program which allows you to add or change keyboard shortcuts used for the Work- bench menus. WKSC works on Workbench 1.2, 1.3 and 2.0. This is version 1.0, binary only. Author: Gary Smith

Fred Fish Disk 740

Debt A calculator suitable for dealing with numbers the size of the national debt. Will accept two 60 digit numbers and come up with a 120 digit answer. Includes source. Author: Martin Gitelson

HDMem Demo version of software that allows you to use virtual memory with OS2.0, version 37.x or higher, on m68020/m68851 or m68030 amigas. Supports task exclusion. The demo version is limited to 2Mb of virtual memory. Version 2.0, shareware, binary only. Author: Stefan Rompf

Klondike A single player card game. Version 1.3, an update to version 1.1c on disk 491. Shareware, binary only. Author: Peter Wiseman

MemCheck A small tool to watch the first 1000 bytes of memory for ille- gal write actions. It also checks some system vectors (cold- capture, coolcapture, warmcapture, kickMemPtr, kickTagPtr and kickCheckSum) to show any changes made by viruses. Kickstart 1.3/2.04 compatible. Version 1.0, binary only. Author: Tom Kroener

MultiClock A flexible titlebar clock commodity with many extra features such as chime with builtin or digitized sounds, alarm which allows launching an Arexx or Batch file, and both digitised and narrator speech to say the time. Requires AmigaDos 2.04 or greater. Version 1.17, binary only. Author: Hugh Leslie

PerfMonitor A small tool to show the CPU usage of each task. Kickstart 1.3/2.04 compatible. Version 1.0, binary only. Author: Tom Kroener

Fred Fish Disk 741

BioComp A program that computes the biorhythmic compatibility of two persons. Uses an intuition interface and allows the printing of the results. Version 1.13, binary only. Author: Gérard Cornu

RKRM_Devices Part one of a four part distribution of complete source code and executables of all the examples in the third edition Amiga ROM Kernel Reference Manuals, published by Addison-Wesley. Part two is on this disk and parts three and four can be found on disk 742. Author: Commodore CATS

RKRM_Lib1 Part two of a four part distribution of complete source code and executables of all the examples in the third edition Amiga ROM Kernel Reference Manuals, published by Addison-Wesley. Part one is on this disk and parts three and four can be found on disk 742. Author: Commodore CATS

Shell2Front A simple, small and pure utility to be launched by a hotkey. It brings to the front, the first shell window it finds, including its screen. Version 0.12, binary only. Author: Gérard Cornu

ShowI A CLI tool which displays all given icons in the original OS 2.0 look. It opens a little window displaying the Icon where you can select and deselect it. By pressing 'n' the next one is displayed. This is version 1.9. FreeWare, binary only. Author: Hans-Peter Guenther

Sizer A small and pure shell utility giving the size in bytes, blocks, and the total size occupied by a directory, file or device. Accepts multiple arguments. Version 0.20, binary only. Author: Gérard Cornu

Fred Fish Disk 742

AList A CLI command that lists the length of every file and the REAL length of every subdirectory in Bytes, KBytes and MBytes. Version 1.0, includes source in C. Author: André Willms

ColorSwitch A little program to switch between WB1.3, WB2.x and user pref- erence palettes. Requires Kickstart 2.0 or higher. Includes source in C. Author: Martin W. Scott

CloseWD A tool which enables you to kill windows which are left on any screen from other programs, which have been terminated by gurus or other things. You can specify the window by pattern matching in the string gadget or by setting a timeout that gives you time to select the proper window. It has a gactools interface and an "ask-before-closing" option. Version 1.2, OS 2.xx only. FreeWare, binary only. Author: Hans-Peter Guenther

ICalc A powerful calculator with many features, including user de- fined variables and functions, C-style programming constructs, complex number calculations and more. Has comprehensive in- structions, and numerous examples. This is version 2.1, an update to version 2.0 on disk 695. Enhancements since prev- ious version include base-conversion facilities and scripts to perform numerical integration. Binary only, source avail- able from author. Author: Martin W. Scott

KeyClick A small utility to provide a key-click. Has a nice Workbench interface to modify settings. Requires Kickstart 2.0 or high- er. Binary only. Author: Martin W. Scott

Pal A small utility to help applications open their own PAL screen on an NTSC Amiga with ECS. It requires Workbench 2.0. In- cludes sources in C and assembly. Author: Eric Gontier

PatchLace A commodity for Workbench 2.0 that makes all interlaced screens open in NTSC mode, thereby reducing flicker. Requires Kickstart 2.0 or higher. Binary only. Author: Martin W. Scott

RKRM_Lib2 Part three of a four part distribution of complete source code and executables of all the examples in the third edition Amiga ROM Kernel Reference Manuals, published by Addison-Wesley. Part four is on this disk and parts one and two can be found on disk 741. Author: Commodore CATS

RKRM_Lib3 Part four of a four part distribution of complete source code and executables of all the examples in the third edition Amiga ROM Kernel Reference Manuals, published by Addison-Wesley. Part three is on this disk and parts one and two can be found on disk 741. Author: Commodore CATS

SetPrefs A CLI command which activates a system-configuration. Useful when different prefs are created (i.e. for the printer) and you don't want to continually change your existing system configuration. Version 1.0, includes source in assembly. Author: Michael Wilkes

Fred Fish Disk 743

ClickRun With the help of ClickRun you can start fifty programs by a simple mouse click. Has a build in editor, online help and iconification. Supports keyboard and mouse. English and German documentation. Version 1.0, binary only. Author: André Voget.

FoCo Format controller. A graphical user interface for disk for- matting. Pops up on disk insertion or via hotkey. Version 1.2, an update to version 1.1 on disk number 566. Requires OS 2.0. Includes source. Author: Michael Balzer

FRequest FRequest is a handy program which lets you select a file by using the ASL file requester and executes a CLI command with the given selection. FRequest can be easily used in batch files and has a lot of options. You can use it as a front end for any program which does not support filerequester select- ions. It exchanges '[]' in the specified command line with the selection. It has a debug ability that allows testing of options before execution. This is version 1.5. OS 2.xx only. FreeWare version, binary only. Author: Hans-Peter Guenther

LoadLibrary Another LoadLib program, but this version runs in it's own task, and uses the reqtools.library for multiselection and other user friendly file handling. All installed LoadLib libraries can also be removed from the system. Version 2.52 for OS 2.0 use. Freeware, binary only. Author: Nils Görs

Look A very powerful program for disk magazines. Supports IFF pic- tures, IFF brushes, ANSI, fonts and many more features. Pro- grammed in assembly language to be short and fast. Available only in German language and PAL. Version 1.2, shareware, bi- nary only. Author: André Voget.

MegaEd A powerful text editor with lots of features, some not found elsewhere. Integrated Text oriented database, extensive for- matting/printing functions, macro language, Arexx-port, key- word indention, multiple blocks/marks, key/menu macro record- ing, configurability for lot's of languages/compilers, inumer- able handy functions for programmers, user friendly interface. Version 1.5, public domain, binary only. Author: Wouter van Cortmerssen

TurboDEX A compiler for the DEX language. DEX is a language similar in structure to Modula2 and C, but different and simpler in concept. Features include compact and fast executables, clear program structure, integration of Exec/Dos/Gfx/Intuition library calls in the compiler, inline assembly, register variables, commented assembly source output, easy to manage development system, and more. Version 1.2, an update to version 1.1 on disk 625. Public domain, binary only. Author: Wouter van Oortmerssen

Fred Fish Disk 744

AutoRunner Automatically executes a CLI command line when you insert a disk into a drive. All you do is put a special tag at the beginning of a comment in the disk's root directory. After the comment tag, you put a normal CLI comand line. AutoRunner then executes this command when the disk is inserted. Version 2.0, Pascal source included. Author: Jonathan Maxwell

FO CLI based Fast Optimizer for AmigaDOS disks. It can optimize one disk in less than 2 min, 30 sec. Allows optimization for CLI or WorkBench usage, and allows you to use unformatted disks as the destination. At least 1 Mb memory required. This is version 1.3, an update to version 1.0 on disk 537. Binary only. Author: Fabien Campagne

FO2 Intuition-based version of FO, will run on a single drive machine. Includes multiple destinations, automatic turn on upon disk insertion and more. Requires 1.5M or more of memory. This is version v2.5, includes source. Author: Fabien Campagne

Hextract A complete header file reference. Definitions, structures, structure members and offsets, flag values, library contents, function definitions, registers, library offsets, etc. The data from a set of V1.3 Amiga and Lattice header files is packed into the included file "headers.z" for immediate reference by Hextract. Version 1.2, an update to version 1.1 on disk 674. Freeware, includes partial source. Author: Chas A. Wyndham

IList A simple list program which displays the data of all open screens and their connected windows. OS 2.xx only. Version 0.1, PD, includes source. Author: Hans-Peter Guenther

NFD Newest File Date. Searches the specified directory for the newest file, then returns that filename and path as an ARP global variable. For people without ARP, it allows you to execute a command line, specified as a parameter, with the file name and path inserted at a specified point. Sample usage would to be have a word processor automatically load the last file worked on when it was invoked. Includes source in Pascal Author: Jonathan Maxwell

P-Index A program for creating active index/selector pages to replace the normal window/icon display. Appearance of pages is only limited by the capabilities of your paint program and your imagination. Index lines can be shown as arrays of boxes (as with current "selector" programs), or as icon look-alikes, or anything else you fancy, with normally a large saving in disk space. Freeware, binary only. Author: Chas A.Wyndham

P-Reader An all purpose reader that displays texts, pictures, animations and sounds, which may be uncompressed or compressed with P-Compress. Texts can include embedded static or animated illustrations and sounds. This is version 6.2, an update to version 5.2 on disk 595. Freeware, binary only. Author: Chas A. Wyndham

Statistics Provides statistical data on ASCII text files regarding file length, number of letters, words and sentences, average word length, etc. Written in assembler for minimum size and maxi- mum speed. Version 1.26, binary only. Author: Nico Max

Fred Fish Disk 745

ARexxBox ARexxBox, inspired by the GadToolsBox by Jan van den Baard, is a tool which greatly simplifies the design and implementation of an ARexx interface for a program. Provides a graphical in- terface in which to enter the command arguments and results, then creates the C source; one module containing necessary basic functions and another containing the interface stub rou- tines to which you only have to add your code to. This is version 1.00, binary only. Author: Michael Balzer

BBBBS Baud Bandit Bulletin Board System. Features include up to 99 file libraries with extended filenotes, up to 99 fully thread- ed message conferences, no inherent limits on number of users, files, or messages, controlled file library and message confer- ence access for users and sysops, interface to extra devices like CD-ROM and others (treated as read only), complete Email including binary mail and multiple forwarding, user statistics including messages written, access time, total files uploaded or downloaded, plus much more. Version 5.5, an update and bug fix to version 5.4 on disk 729. Binary only. Author: Richard Lee Stockton

WizKey A commodity that speeds up working with windows and screens via allowing the user to manipulate them via keyboard instead of mouse. Anything you can do with system gadgets becomes accessible via keyboard. Popup windowlist allows activation of any window by keyboard or mouse. Configurable Hotkey definitions and a complete ARexx port. Shareware, binary only. Author: Jörg von Frantzius

Fred Fish Disk 746

ATbl A program for table formating, somehow inspired by the "tbl" utility on UNIX system. Can produce a printer output (with IBM semi-graphic characters) or a regular IFF file which can be read by any decent word-processing or desktop-publishing program. Both French and English documentation. V2.20, update to V1.00 on FF583, with a lot of bugs fixed and a few enhancements. Binary only Author: Denis Gounelle

KCommodity Multifunctional commodity for OS 2.0. Includes window- activator, time-display in several modes and formats, alarm function, KeyStroke-Clicker, time to environment, Window/Screen cycling, LeftyMouse, ESC-Key can close Windows, Revision Control System, telefone bill calculator, Screen- /Mouse-Blanker, Mapping of german "Umlauts", PopUp Shell, AppIcon support, LeftyMouse, user definable HotKeys. Fully controllable via ARexx-Port. All settings can be customized and saved to disk. V2.00, update to V1.75 on FF673. Requires OS 2.0. Written in assembly for speed and efficiency. Shareware, includes source. Author: Kai Iske

Skew Skeleton Writer is a tool for generating C code for various Intuition based applications. You click the mouse and the code gets written. Similar to PowerSource and GadToolsBox, but with slightly different functionality. V1.2, update to V0.85 on FF658. Includes source. Author: Piotr Obminski

Fred Fish Disk 747

ADoc New version rewritten from scratch, of a help utility for the Amiga which allows you to have permanent help on any subject you want. Features include automatic search of any word on which you clicked, intelligent term requester, ability to use Commodore "AutoDocs" files and any nonproportional font, an AREXX port, and more. Both French and English versions. This is ADoc2 version 1.21, an update from ADoc 7.05 on disk 627. Binary only. Author: Denis Gounelle

APrf A printing utility for the Amiga. Features include full In- tuition interface, preview function, page selection, margin setup, line numbering, an AREXX port, a multi-columns mode, 2.0 system release support and more. Both French and English versions. This is version 1.40, an update from version 1.30 on disk 706. Binary only. Author: Denis Gounelle

AUSH A command line interpreter for the Amiga. Features include file name completion, pattern expansion, expression computa- tion, command history, for...done loops, full support of AmigaDOS 2.0, and much more. Almost fully compatible with ARP and Commodore shells. This is version 1.52, an update from version 1.42 on disk 706. Binary only. Author: Denis Gounelle

Fred Fish Disk 748

DeliTracker A powerful and system friendly music player. Features include configuration files, GUI, full ARexx control, flexible player interface and xpk support. DeliTracker will play all popular sound modules available on the Amiga. Currently it supports over 40 different module formats. The most important players (PT/ST/NT) are internal. Additional players (like MED, 8SVX, SMUS, ...) may be loaded from disk. Includes the source of nearly all external 'deliplayers'. Version 1.30, shareware, binary only. Authors: Peter Kunath and Frank Riffel

Fred Fish Disk 749

AmokEd A highly configurable editor based on Matt Dillon's well known DME. Features a rich command language, an ARexx interface and ARexx based application port, environment variable support, user definable pull down menus, fast scrolling and scroll gad- gets, multiple file editing, iconification, reentrant and can be made resident. Written in Oberon, version 1.30, binary only. Requires AmigaOS2.0 or higher. Author: Hartmut Goebel

LogMan The Log Manager allows you to manipulate your log files to a greater degree than other log managers. LogMan operates on a personalized script file. You can insert a call to LogMan in your startup-sequence or in your "mail" script. LogMan will call the script and check certain parameters. Requires kickstart 1.3 or 2.0 to operate. Version 1.003, freeware, binary only. Author: Bob Rye

PaperBack Allows the user to generate a double sided document from a single sided one. Two output documents are created: an ODDS set and an EVENS set. The odds set can be printed on single sheet or tractor feed paper, reversed and re-inserted in the printer, then the even set can be printed on the reverse side. Page sizes are all fully editable by the user, along with cer- tain other parameters. Handles predefined page breaks eloquently. Saves paper, and storage space. Requires kickstart 1.3 or 2.0 to operate. V2.004, freeware, binary only. Author: Bob Rye

PED A source text editor which supports all important standard editor commands. It accepts mouse and keyboard commands, and will run from CLI and from Workbench. PED doesn't use the op- erating system for outputs and scrolls very fast. Version 2.30, binary only. Author: Frank Wille

PhxAss A MC68000 Macro Assembler which supports includes, incbins, small data and small code model, optimization, 12 arithmetic operations, relocatable and absolute code, floating point equates and nearly all standard assembler directives. PhxAss can be used from CLI only. Version 2.11, binary only. Author: Frank Wille

PhxLnk An Amiga DOS Linker which is very small (7 KB) and processes the small-code/data model. It does not support overlay hunks in the current version. PhxLnk can be used from CLI only. This is version 1.27, binary only. Author: Frank Wille

VoiceEditor A tool to edit, save, load, and convert instruments of Roland D-20 Synthesizers (and compatibles, like D-10) via MIDI. You can convert instruments into Music-X sequences, save and load voicedumps and edit the system area of your D-20. Req.library and midi.library are used and included. V2.0, binary only. Author: Andre Willms

ZipWd ZipWd is a little example code of the new OS 2.xx feature of zipping windows. It does the same thing as clicking on the window's ZipGadget. It's also useful if you define a keyboard macro with ZipWd. Requires AmigaOS 2.xx. Version 0.5, public domain, includes source. Author: Hans-Peter Guenther

Fred Fish Disk 750

AddIcon A useful tool that copies icons to a given file or directory. It supports pattern matching and has various options. It first looks at the suffixes of the files and for chunks to identify their types, then it copies the right type of icon to the files. These icons should be located in the Icons: drawer. Contains all needed icons. OS 2.xx only. FreeWare version 1.7, binary only. Author: Hans-Peter Guenther

CFX Crunched File eXaminer allows the user to examine and find files using several different search criteria. CFX knows a huge amount of the current Amiga filetypes, including a vast number of "cruncher" types. CFX can also give in-depth dis- assemblies of crunched files, including most address crunched files, relocator crunched files, and some major archive crun- ched types. This version requires kick 1.3 or 2.0. Version 5.242, freeware, binary only. Author: Bob Rye and Marcus Mroczkowski

Create A replacement for the "makedir" command. It can create dir- ectories and files. Useful for some editors and other pro- grams that allow you to you define a file to load at start- time. In this case files can be created before calling these programs that usually give you nervous requesters on non-existing files. It accepts multiple files and directories, and is also useful for batchfiles. OS 2.xx only. This is version 1.1, freeware, binary only. Author: Hans-Peter Guenther

DockBrushes Two PAL pictures containing brushes to be used with AmiDock (Shareware program by Gary Knight), or other such utilities. One is in hi-res (640 x 256 2 bit planes), the other in hi- res interlace (640 x 512 2 bit planes). Author: Gérard Cornu

ExecMaster A tool that allows you to start scripts, programs and rexx scripts in different ways. You can optionally specify an out- put. This could be a file or even a window. It has the abil- ity to iconify and a full gadtools user interface with key command support. It fully supports PublicScreens. OS 2.xx only. Version 1.7, freeware, binary only. Author: Hans-Peter Guenther

FontViewQ A commodity to display a table of characters of any Amiga font, which is chosen by a font requester. The characters are clickable to show you the ASCII value and the key combination to press. With AmigaOS 2.1 a localization takes place (cur- rently German and French). Version 1.2, includes source. Author: Dieter Temme

SaveW SaveW is the counterpart of SizeW. It saves the current win- dow coords to a file (if given) or to STDOUT. Includes some useful shell aliases. OS 2.xx only. Version 1.3, freeware, binary only. Author: Hans-Peter Guenther

SizeW SizeW is a tool that lets you change the size and the place of the currently active window. You can specify coords from commandline or optionally from a file. This is a companion to SaveW. Includes some examples in the docfile. OS 2.xx only. Version 1.5, freeware, binary only. Author: Hans-Peter Guenther

SplitQ Opposite of the AmigaDos 'JOIN' command. A portion of the file specified by offset from the beginning and length is saved to a new file. The syntax is like the BASIC function MID$(). Parts can be rejoined with the 'JOIN' command. Version 1.1, includes source. Author: Dieter Temme

StripIt A programming utility that strips all kinds of comments from given source codes of all programming languages. It is con- trolled by a config file which includes the rules of the comment chars. Some configuration files included. OS 2.xx only. Version 1.3, freeware, binary only. Author: Hans-Peter Guenther.

To Be Continued......

In Conclusion

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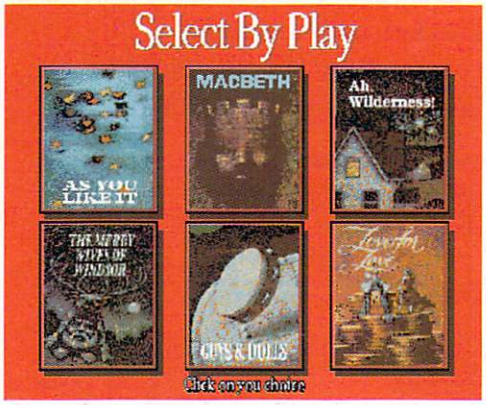

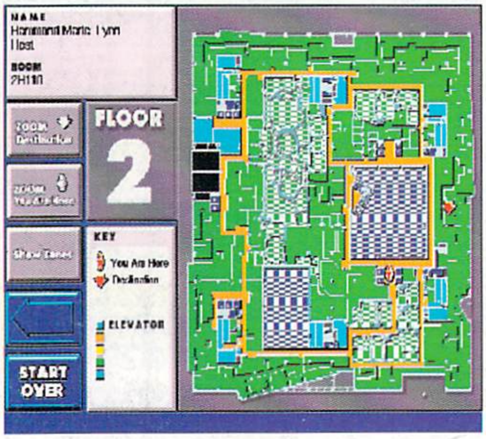

Whether you want to see a play, find a fellow employee, or locate a place for a great vacation, St. Claire Interactive has an Amiga-based system to do the job.

St. Claire Interactive Communications is a multimedia developer providing a variety of solutions to businesses using the Amiga. St. Claire demonstrated several of their business solutions at COMDEX in Las Vegas (November 16-20). These displays included a coupon-vending kiosk for K-Mart stores in Canada, a theater-ticket-selling, networked database system, and a tourist and information kiosk for the Canadian tourist council.

K-Mart Canada

The K-Mart kiosk system allowed customers to view several areas of interest and find items on sale, coupon items whereby the kiosk actually printed a valid coupon, or both. The system is updated by modem and is separated into different regions. If an item is not selling in one area proportionally to another, the central office can establish a sale or special coupon offer for a product in that area and then modem the information directly to kiosks in stores throughout the region.

This unique approach allows K-Mart to maintain an accurate control of inventory stocks, take advantage of offers from the manufacturers, and in general supply a focused approach to retailing to a single area as well as throughout the entire organization.

$SEATS

$SEATS combines the professional qualities of a relational database and the ease of a highly graphic user interface together to provide an easy-to-learn, highly reliable theater-ticket reservation and selling program. Created to work on an Amiga LAN with 1–15 interfaced Amigas, $SEATS can be self-serviced or used by a broker. A customer can make reservations for an event while an administrator reviews the reports on ticket sales and more. The computer can either pick the tickets or allow the user to choose, and then immediately update the ticket information on the entire system.

The system is designed to provide seat availability by date, event, and special pricing days. The system will keep track of response frequencies for events, provide on-screen training and support for new personnel, handle the ticket sale, and more. $SEATS will also provide reports on revenue by type, updated seat inventory, activity reports based on each shift, plus maintain a database of customers and problems. All of this can be maintained on a five-year forward calendar. Not only will the system accept all the data for a sale, but it will get credit card authorization, print the tickets, and even provide the mailing label.

The $SEATS system is unique in its user interface. St. Clair Interactive Communications has personalized the application to fit the product. Icons for events resemble actual show posters. There are even information screens available that show each production and its stars. The $SEATS system appears to be a very powerful tool for small theater groups and ticket agencies. This type of application has the potential to place Amiga-based units in a wide variety of locations.

Other Milestones

These are not the only success stories from St. Clair. They have created kiosks or programs for tourists in Canada and New England, frequent flyer miles programs, job application self-service multimedia stations, visa stations for information to foreign travelers, retail network planning, and even a service network for the National Auto League. One very intense program called for an interactive system with 42 Ethernet LAN wall-mounted touch-screen units to assist 3,200 employes of the CBC to locate each other.

There is no doubt that the effort provided by St. Clair Interactive has improved the productivity and sales of each organization they have assisted. Their investment in Amiga technology and multimedia marketplace has earned them not only a variety of clients, but an expertise that will continue to provide them a steady stream of contracts and assignments.

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